CENTIMETERS



14:1

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#### A SELECTIVE MICROFILM EDITION PART V (1911–1919)

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#### Thomas A. Edison Papers

at
Rutgers, The State University of New Jersey
endorsed by
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18 June 1981

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The original documents in this edition are from the archives at the Edison National Historic Site at West Orange, New Jersey.

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# START

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A Note on the Sources
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filmed are the best copies
available. Every technical
effort possible has been
made to ensure legibility.

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#### **Edison General File Series**

The Edison General File (EGF), formerly called the Document File, is primarily a collection of incoming letters addressed to Edison. The letters frequently contain notations by Edison or his secretaries indicating the nature of the reply. Drafts and copies of outgoing letters can also be found in this file, along with numerous interforce communications and a variety of other documents, such as memoranda, reports, and agreements. The subjects covered include the complete range of Edison's businesses and technologies as well as his personal affairs, reminiscences, and opinions on contemporary issues.

Edison's correspondence files were maintained by his personal start, William H. Meadowcroft, who screened the incoming mail, decided which Items merited Edison's attention, and directed the remainder for routine or form replies. Most of the outgoing correspondence bearing Edison's signature was drafted by Meadowcroft on the basis of the inventor's marginal comments on the original letter. Numerous additional letters were signed by Meadowcroft himself in his capacity as "Assistant to Mr. Edison." More routine letters that were merely signed "Edison Laboratory" may have been composed by Meadowcroft's own assistants, including Rudolph L. Tulioch and Henry A. Altengarten. Until 1916, tissue copies of the outgoing letters were bound together in volumes (see the Letterbook Series). However, this practice diminished in 1917 and was apparently abandoned altogether by 1919, as carbon copies of the outgoing replies were increasingly filed with the incoming letters in the EGF.

Although Edison remained at the head of his many businesses, a content of which were brought together under the name of Thomas A. Edison, Inc. (TAE Inc.) in 1911, oversight of daily operations was delegated to divisional managers. The business correspondence found in the EGF most togically includes internal strategic discussions with senior officials, items sent to Edison for approval, and cases in which he was asked to intervene personally to make special arrangements for a friend, relative, or associate. The Edison company officials represented in the correspondence over the years 1911-1919 include attorney Frank L. Dyer, who served as president of TAE Inc. until 1912; Carl H. Wilson, vice president and general manager, financial executive Stephen B. Mambert; Delos Holden and Henry Lanahan of the Legial Dept.; Harry F. Miller and Richard W. Kellow, who handled Edison's personal business interests; Robert A. Bachman of the Edison Storage Battery Co.; Walter S. Mallory of the Edison Portland Cement Co.;

William Maxwell of the Phonograph Division; Miller Reese Hutchison, Edison's chief engineer and personal representative for most of this period; and Charles Edison, who was groomed to take over from his father toward the end of the decade.

In addition to Edison's personal and business correspondence, the EGVF contains a voluminous quantity of unsolicited mail that the inventor received from members of the public on topics such as politics, war, the economy, cigarettes, diet, and religion and spiritualism. Other unsolicited letters consist of requests for advice (and often financial assistance), invitations to join clubs and societies or to give lectures, offers to purchase real estate, and Inquiries from those seeking employment. Such items have been selected only where Edison was personally involved in the correspondence. Meadowcroft made extensive use of form letters in responding to these inquiries and requests, and a representative sample of these form-letter replies has been selected.

The documents in the EGF are arranged by year and are subdivided within each year according to broad subject categories. Many of the subjects relate to Edison's technologies and their associated businesses, such as cement, motion pictures, storage batteries, and phonograph. Major themes in the years up to 1915 include corporate reorganization, the introduction of the disc phonograph, and early demonstrations of the kinetophone, or talking motion picture. After the outbreak of Word War I, Edison's attention shifted sharply, and there are large quantities of documents pertaining to his rapid production of coal-derived organic chemicals for military and industrial purposes, his role as president of the Naval Consulting Board, and his experiments on submarine detection and other war-related problems for the U.S. Navy.

Other folders contain documents relating to Edison's ongoing interests, from book and journal orders to mining and minerals. There are also folders with correspondence on legal, financial, and patent matters. Documents pertaining to Edison personally, including his homes, friends, and relatives, can be found in "Edison, T. A.," "Family," "Fort Myers," "Glemmont," "Personal," and "Visitors," as well as in more specific folders such as "Ford, Henry" and "Camping Tip."

Approximately 20 percent of the documents, including all Items bearing substantive notations by Edison, have been selected. More specific selection statements can be found in the editorial descriptions preceding each folder.

#### A Note on the Organization of the EGF and Related Record Groups

The EGF (1911-1931) is a direct continuation of the Document File that covered the years through 1910. Like the Document File, the EGF is derived from the correspondence records as they were originally maintained by Edison's secretaries. However, there are significant differences in the nomenclature and contents of the folders in the two record groups.

The Document File, selections from which appear in Parts I-IV (1850-1910) of *Thomas A. Edison Papers: A Selective Microfilm Edition*, was processed by the editors of the Edison Papers according to a set of guidelines for consistent subject classification. Unsolicited correspondence and other unsolicited items outside the mainstream of Edison's business and inventive activities were arranged in a series of "unsolicited" folders. The EGF, by contrast, was processed by archivists at the Edison National Historic Site beginning in the 1990s, who followed much more closely the occasionally idiosyncratic subject classification that existed in the records as arranged previous archivists. As a result, the names and contents of the folders are not entirely consistent from one year to the next, and some folders that contain a low proportion of selected documents in one year may have a substantially greater proportion in other years.

Furthermore, correspondence on a particular topic may sometimes be spread out over more than one folder in a particular year or arranged in different folders from one year to the next. An example of the latter is the correspondence from 1911-1913 about a law suit arising from Edison's work on automatic telegraphy during the 1870s. The letters for 1911 and 1913 are filed in the "Legal-Litigation" folder, while those for 1912 can be found in "Telegraph." Similarly, letters to, from, and about Edison's friend Henry Ford can be found not only in the folder called "Ford, Henry" but also in the "Personal" folder and, quite frequently, in several other folders as well. Documents about the annual camping trips in which Edison, Ford, industrialist Harvey Firestone, and naturalist John Burroughs participated during the middle and late 1910s can be found in a folder called "Camping Trip" for 1918, whereas similar items for other years are filed in the "Ford" and "Personal" folders. General folders such as "Edison, T. A.," "Personal," and "West Orange Laboratory" contain a variety of miscellaneous documents which can vary considerably from year to year.

Prior to the 1980s considerable quantities of business records, which are not directly related to Edison nor part of the original files maintained by his secretaries, were processed into the EGF. Many of these extraneous items were removed by archivists during the 1980s and 1990s and reorganized into new record groups such as the Edison Portland Cement Company Records, Edison Storage Battery Company Records, and the records of various divisions of TAE linc. New record groups were also created for the personal papers of company executives such as Frank L. Dyer and Carl H. Wilson, for Edison's second wife Mina Miller Edison (Edison Farnily Papers), and for the documents relating to Edison's wartime research and his rule as chalman of the Naval Consulting Board.

It should be noted, however, that, along with the routine business uncernants, there are numerous items authored by Edison or bearing his marginalial in most of the company and divisional record groups, as well as in the Naval Consulting Board Records (Special Collections Series), Harry Fr. Miller File (Legal Series), and Richard W. Kellow File (Legal Series), Finding aids for these record groups are available from the Edison National Historic Site.

With a few exceptions, the nomenclature used in the EGF archival record group has been retained for the Edison General File Series of the microfilm edition. However, "Edison Portland Cement Company," which appears as a subdivision of "Cement" in the early years of the archival record group and as a main entry in subsequent years, consistently appears in the microfilm edition as a main entry. Three closely related folders-"Mining," "Metals and Minerals." and "Ore Milling"-that are separated by the "Motion Pictures" folder in the archival record group have been brought together in the microfilm edition as "Mining—General," "Mining—Metals and Other Minerals." and "Mining-Ore Milling." In addition, subdivisions have been created for the 1911 and 1912 "West Orange Laboratory" folders, which are much larger and more variegated than for subsequent years. For example, the letters and reports that were written to keep Edison informed about laboratory and company operations while he was vacationing in Florida in March-April 1912 appear in the microfilm edition in a separate folder entitled "West Orange Laboratory and Associated Companies-Letters and Reports to Edison."

EDISON GENERAL FILE SERIES

1911

#### Edison General File Series 1911

Advertising Inct selected

E-11-01	Advertising [not selected]
E-11-02	Advice Articles
E-11-03	Autograph and Photograph Requests
E-11-04	
E-11-05	Automobile
E-11-06	Aviation
E-11-07	Banking
E-11-08	Battery, Storage - General
E-11-09	Battery, Storage - Country House Lighting - General
E-11-10	Battery, Storage - Country House Lighting - Windmill
E-11-11	Battery, Storage - Delivery Wagons - General
E-11-12	Rettery Storage - Delivery Wagons - Endurance Tests
E-11-13	Battery, Storage - Delivery Wagons - Horse-Drawn Wagon
L-11-10	Costs
E-11-14	Battery, Storage - Delivery Wagons - Lansden Company
E-11-15	Battery, Storage - Edison Storage Battery Company
E-11-16	Battery, Storage - Electric Vehicles - General
E-11-17	Battery, Storage - Electric Vehicles - Anderson Electric Car
	Company
E-11-18	Battery, Storage - Electric Vehicles - Promotional
E-11-19	Battery, Storage - Federal Storage Battery Car Company
E-11-20	Battery, Storage - Foreign - General
E-11-21	Battery, Storage - Foreign - Bergmann, Sigmund
E-11-22	Battery, Storage - Railroad
E-11-23	Battery, Storage - Submarine
E-11-24	Birthday Greetings [not selected]
E-11-25	Book and Journal Orders
E-11-26	Business Propositions [not selected]
E-11-27	
E-11-28	
E-11-29	Charities and Loans
E-11-30	Chemicals

```
Christmas and New Year Greetings [not selected]
F-11-31
          Cigarettes
E-11-32
           Clubs and Societies
E-11-33
          Copyright [not selected]
F-11-34
E-11-35
           Deafness
           Edison, T. A.
E-11-36
           Edison Crushing Roll Company [not selected]
F-11-37
           Edison Star [not selected]
E-11-38
           Education
E-11-39
           Electric Light
F-11-40
           Employment
E-11-41
           Equipment and Supplies [not selected]
F-11-42
           European Tour
F-11-43
           Exhibitions
E-11-44
           Family
E-11-45
           Fan Mail [not selected]
E-11-46
           Financial [not selected]
F-11-47
E-11-48
           Ford, Henry
           Foreign Language Correspondence (Untranslated) [not selected]
E-11-49
            Fort Myers
 E-11-50
            Glenmont
 E-11-51
 E-11-52
            Health and Diet
            Honors and Awards
 F-11-53
 E-11-54
            Insurance
            Invitations
 F-11-55
            Lectures [not selected]
 E-11-56
            Legal - General
 E-11-57
            Legal - Litigation - George Harrington, Josiah C. Reiff, and
 E-11-58
            Thomas A. Edison v. Atlantic and Pacific Telegraph Co. et al.
            Legal - Litigation - Thomas A. Edison v. Allis-Chalmers Co. et al.
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F-11-59

E-11-60

Mining - General

E-11-62	Mining - Ore Milling
E-11-63	Motion Pictures
E-11-64	Name Use [not selected]
E-11-65	Patents [not selected]
E-11-66	Personal - General
E-11-67	Personal - Johnson, Edward H.
E-11-68	Phonograph - General
E-11-69	Phonograph - Edison Phonograph Works
E-11-70	Phonograph - Foreign
	Tankning Employees
E-11-71	Phonograph - Laboratory and Technical Employees
E-11-72	Phonograph - National Phonograph Company and Thomas A.
	Edison, Inc.
E-11-73	Politics
E-11-74	Polyform [not selected]
E-11-75	Port Huron [not selected]
E-11-76	Radio [not selected] Real Estate
E-11-77	Receipts [not selected]
E-11-78	Religion and Spiritualism
E-11-79	Secretary [not selected]
E-11-80	Secretary from selections
E-11-81	Stock and Bond Offerings [not selected]
E-11-82	Telegraph
E-11-83	Telephone
E-11-84	Thomas A. Edison, Inc.
E-11-85	Visitors
E-11-86	Warren County Warehouse Company [not selected]
E-11-87	III I O I sharotoni
E-11-88	West Orange Laboratory and Associated Companies - Letters
_ //	
E-11-89	West Orange Laboratory and Associated Companies - Notes by

Edison

Mining - Metals and Other Minerals [not selected]

#### Edison General File Series 1911. Advertising [not selected] (E-11-01)

This folder contains solicitation letters from advertising managers.

#### Edison General File Series 1911, Advice (E-11-02)

This folder contains unsolicited correspondence requesting Edison's advice on technical matters or seeking his assistance in improving or promoting inventions. A letter of introduction written by financier George W. Perkins is included.

A sample of less than 2 percent of the documents has been selected. The selected items contain Edison's replies in the form of marginalia.

a ment weld smap flashed an idea into my head and I ment to till you yirask if it could be made of any so to supply any disind temperature from 60 to 90 of spirally constructed electric appenel - to be trimed are or If at will - regarders of "all mather conclitions . 25 that the "Bird man" 10,000 ft ir any makel in the air can antiply my dured runth

ho-a-she- may disme at will-In sont. an electrically appointed sidual nould be profound In any rudden drop in The temporation. and strong afflicted with tubulains would him out doors comfortably without burding themselves with 34 ha howing mighted clothing To the idea north any thing? In ir ho? - Han it men brien carried out outside of all the Jamilia hotbago galow? Please tell me -Very truly Jems ammitte. G. Wille -605 Highland Place Coffyille. Kum 1/18-1911.

Grand Rapids Mich; Jany 18th 1911.

r. Thos A. Edison.

Orango, H. J. wells sprays come

/ My done str:-

I fool that I am taking apgreat little live

orty in addressing you, and can hardly toll my I by doing so. Councilled

it of conveying; mixing and moulding concrete has other plantic unterial. Let

this process and claiming they have been allowed certail claims. The have delayed the issueing of the patents pending application for foreign patents. I have therefore not been able to secure a copy of their claims. I have no doubt you have beard of this process and must realize the magnitude of its scope.

I am not the typical poor inventor and still I am young and new at the patent game. I know on the centrary, that you have had experience and to tell you the truth; That you are not so in need of money that the advice you would give me would be all for your own interest. This Idea may not be as valuable as I think it

to be. I am soming to New York; and if you are to be at home most wook and it would not be too much to ask of you; I would gladly go to your city from there; and would eatem it a great favor if you give me a few mimites of your time for a conversation on the subject.

If I am asking too mach; you have simply to ignore this let-

tor. I wish to leave here Sunday night; which will got me to Wachington # Nonday morning. I will procure from our Congressman.

Wm. Alden Smith; a letter of recommendation; and proceed either from there to Orange or New York.

Should you entertain my suggestion favorably; will you wire me here at my expense, the date most convenient for you to see me.

# 2. 1/18 11.

John & Dunton

JOHN D. OREAR

Couldness of the control of the cont

Sir:-

Hon. Thos. A. Edison.

"I am informed when the effortize made to transmittelectric power from water-fells it is found that when the corrent is stepped up to a certain voltage; the air refuses to become longer am insulator, and the electricity escapes is the eatr.

It believe 'you are the' only 'man'an: the world who can discover an insulator which will prevent the loss of the coursest. Alt may be 100, years before another with your knowledged is born into this world. We have enough power going to waste to run every train, cook every seal; and run every factory if only as way, is' found: to transport the coursest without much loss for any distance: An estimate is made that 9,000,000 of horse, power its coing to waste in our lesters Mountains alone.

If believe:if:you:will you.com stop this waste; and thereby.confer.upon.mamkind:its.

Hoping: that I may be pardoned the boldness: of addressing you thus unsolicited; may I mak to remain.

Yours: Very : Respectfully.

John D. Our

Dran Thosa Edison Will Would you Kudly Sil advise me whats the bish for of electricity to use in stimul the body cells - and which can "stand up" in the body -9 sometimes take "derect current dynams Electricity off the belegraph instrument By placing one hand on "Key" or other hand on steam radiation to form a circuit But this Kind of current seems to "gerky" 9 Kup my fut insulated By waring mibber mod think there ought to be some way so "stone up" Chethery in the human system to overcome folique nervousmes oc 2, there

me outcould the Bustin Brown " Cartoonish tells me he can light the gas with his finger trip , How can I acquire this power? Is it a matter of storing electricity? It's hard to believe than one can do this But Im surely ambitions to do in How is your ear trouble now, I still have the tumble hist-worses an the left in is so had lately that I have to press the head against the sounder or resonator in order to "read" the missages Thanking you Mindly mith 73"

853- Goth 23 rd for Lincolne Mr. Thor a. Edison I was our Operator 17 years on the 6 trul Rymy attention has drawn to the lact, that bood was getting short, for Railway Ties, I have fatented in the U.S., Canada, England, France and Rusia a "Parallel Reinforced Concrete Cushion Rail Tie or sleeper - which runs Para-- elel with the Rails for a bushion, ? use Asphault making a continuous Enshron bearing, May I send you a inspection and opinion, will give you an nelepest in same, for assistance to get introduced

RELATIVIS BROS
Established 1894.

Wholizata & Relatil dealers
In Drigge & Geomicials
Estebrighing Establishment
Input August Aug

Defore commencing this letter I beg your for fivenes for taxing away few minutes of your valuable Time. Every great invention is The more valuable The more it comes in contact or in use in The life of The great masses. Genius belongs to The whole world, and Therefore I, who is separated from you by a distance of about 10000 miles in the far away and endless kicking, hope you will not refuse to accept my cervices in the introduction of your inventions in Trussia. If The present Time I am greatly interested ) in The Enidoling of houses according of your ideas which have advanted the attention of the whole world I in your great starage batteries. Living in a rayon of intimited natural mineral resources coal nimes ede. on The great Don river basseyn at the gate of Caucasus in the city of RustowonDon. which in Trussia is considered The second Chicago.

I hipe that The geographical position of the city more one hand as well as more and my brothers energy and ability on the other, our good name and working qualifications, would make it possible for us to introduce here your great inventions which transfer fourtory into readily.

Hoping you will pavor me with an answer

I remain yours very respectfully
J. Wearins

Our references are: The whole city and The following Banks:

The Imperial Bann.

Sow Don Commercial Bank.

Wolfiko Carnsky Comm. Bank.

S. Petersburg private Comm. Bank

Moscau Marchands Bank

The Asiatic Bank

The Muluod credid Banks

The S. Petersburg International Bank

and many others.

A. 1.

ODOROMETER RUDOLPH HERING

#### HERING & FULLER

CONSULTING HYDRAULIC ENGINEERS AND SANITARY EXPERTS

170 BROADWAY NEW YORK, N. Y.

SUBJECT

Thomas A. Edison, Esq., ILlewellyn Park, Orange, N. J.

My dear Sir:

question.

I have been interested for some time in the OUW question of the dissemination of odors, particularly from sewage disposal plants, and some time ago, as my memory serves me, I got the impression that you had studied this question on general lines and designed some sort of apparatus of an electrical nature for recording the intensity of odors, etc. I should be very grateful if you would be good enough to indicate to me where I could learn as to the results of your studies of this general

Very respectfully

In W Fuller

force our through But of think you could an oxidizing apportuna a continuole, understo the amount infort maller in the almosphere -Ette oxdony or use an ordent Billion X on the activities at a construction of the contract Control State Control

#### -тне-

#### MONTCLAIR HERALD

PUBLISHED EVERY FRIDAY AFTERNOON

MONTCLAIR, HONTCLAIR HEIGHTS, GLEN RIDGE AND VERSNA

HIGH WATER MARK

1911 See Mans N. J. Jan. 24, 1910

Doar Mr. Bilson: Western Blison: 12,

We are having any enount of translating printing our part with alectricity, and I write to the ir you cannot kindly suggest some alectricity, and I write to the ir you cannot kindly suggest some are way by which we can prevent the affirmative fine optic Later and Co. Characteristics of the contraction of the contrac

In printing our paper frictional electricity is isvalops as seen on that the sheets become highly care and thin or un through the folder. They stick together as it they were glued and the folder. They stick together as it they were glued and office and the factors and they you got quite a little shock when you at the pit to handle them.

Can you kindly suggest some way which we can draw off the electricity, so that we can run the sheets through the folder at once. As things are now, they come off the big press shroharged with frictional electricity, and stick together like glue, so that we cannot get them through the folder. The result is that we miss the mails, and destroy any amount of paper.

You will remember that I have written frequently about your inventions in the papers of the United States, and I would appreciate a hint from you as to how to avoid the electricity.

I should also be glad if you could give me about ten minutes of your time one of these days. I want to ask you about one or to things, if convenient to you.

With kind regards, I am

Very truly yours,

#### The Moore Filter Company Broadway-Baiden Lane Building

HENRY B. HAIGH
FRESCHIT
WILLIAM H. HAROING, JR.
SESSIAN AND TREASURES
JOHN COLLINS CLANCY

170 Broadway

CARDINA

(SECTORS HTHEILL COOE)

NEW YORK, U. S. A. January 28, 1911.

Mr. Thomas A. Edison, Orango, N. J.

Dear Sir:-

Your valued favor of the 25th inst. received during the absence of the writer, which will account for the delay in acknowledging its receipt.

We should be very pleased indeed to avail euroclives of your suggestion to have kr. Clancy go ever to your Laboratory and explain his process more fully to you just as soon as he returns from the West, which will probably be in the course of the next ten days or fortnight, which we trust will be quite satisfactory to you.

We are sure that Er. Clancy would wish to personally avail hisself of the opportunity of explaining the process, and therefore we make the above suggestion rather than sending commons else to do so.

Sincerely thanking you for your interest, and trusting that the arrangement that we have suggested will be quite agreeable

Mr. Thomas A. Edison. -2- 1-28-11.

to you, we beg to remain

There

нви/н

Day-there is no differently in ulder of am Enclosing you a letter From Westinghouse Electric regarding the use of the gas producer Engine in Inglising our Liquite Coalfor Example = Me have Billions of Xons of an Executant quality of Sub-bituminous cool miskin rs miles of Billings-Do you consider it possible to convert this

(2

Coal Into Heat, hight, and power on the ground at the mines and transmit it by vrives to Billings for Heating purposes. These Coals analyse as Follows:

Air-dried Dample.

Moisture. F. sr.

Volatile 3 t. 76

FirelCartm. St. 71

Osh.

British Thermal Units=

11. 610

We have no Railmay to this vast body of Coal. I know of many other Coal

Fields ironnediately tributary to agricultural lands that may be reclaimed with Electric Pump-If these coals can be converted into heat for power and all domestic purposes Why would it not be a great Javeing to the Jeople in the Transportation of the Cool Over Railways- Morr that we have a Bureau of Mines devoting their Energies to the conservation of coal and our other Hatural re-bourceb-Hould it pay to put in a porrer plant at these coal measures for the purpose of Furnishing heat for domestic purpose- as nell as light and power-What would be the limit of distance-I have visited all the Coal Fields of the west during the past three years- and have resided in the trul Since 1869- and I feel that there are great possibilities for Utilizing our coal and oil without hauling and

distributing the Ram articles-The coal of the atlantic States would bupply their territory mith power- Light- and heat directly from the coal file-The middle had the Dame as for so the Missouri River-The Vall deposit of Cool and Oil, world buffly all the territory from the Miseria to the Pacific - by Kire-Mr. Myssey rose is a firm believe in the Electrification of the Richards in the rear felien- portioned trul of the misoni Rinyour good knowledge along these lives parte me to ask if it mad not by practicable for the they of Bishings to unfurth the plan of transmitting and Heat - light - and form from our near-by Cool. The fuel is to plentiful that I end he mind by beam shords if Neason. There are Biling of tone viction

25 Miles of om litygradiency Gover Dolate and My Extending North & into Chula. perhaps you comed refer me to the Comparation Cook of Electric Heat gruented by Cool- and the Cool The gas- Droduon Engine a babotim of the question of blood Donn-Thanking you mad &

1810 Main St.

PHONE MAIN 7793

#### HOOD ENGINEERING CO.

MECHANICAL AND TOPOGRAPHICAL DRAFTSMEN

BLUE, WHITE AND BROWN PRINTS

MACHINE DESIGNING AND DEVISING A SPECIALTY

Dallas, Texas Feb. /4/1911,

Mr. Thomas A.Edison,

West Orange, N.J.

FE3 G-13

West Orn

Dear sir:-

I suppose you are beseiged with questions of the Charicter,
I am going to ask you, but I no of no source of information there
I consider as dependante as yourcelf.

I want to know if it be possible to treasmit over the same wire as many as one thousand electric currents, or to comble the electric impulses to select its index, so to speck at the other and of the wire?

The strength of the currents may be very small, but carefully of being used as directors of stronger currents.

To make myself clearer, when I send the impulse \$900 I want it to select \$900 at the other end.

If this can be done I can look at you while talking to you ever the telephone,

Yourg very truly, bo

Dear Sir your plan is a fronte have had in vailed since traveling in the western mountains last summer. I know that if I would present it to any railroad court any deirect that whey would beject it without giving it any consideration. Little feel sure that if present by you that it would be considered selecusly Jony idea is to use locks similar to the ordinal cause lock to reduce the milesge and to greatly reduce the grade on any of the railroade worm of the Southern Pacific P. Rin Gelifornia the Road whinds around agreat distance to gain a few hunded feet election. By wisely Closating a look in regard to a plentiful water puffly and the of the country I feel Sure that millions and be pand in afterating and much time pared my idea would be to elevate as much as possible by every lock established I believe in some places Jas much as 1000 feet elevation could be accomplished at once.

a boat similar to those used, in the Railroad Services at Detroit and Sun Transces would solve that part of the problem, as they are operated very rapidly and take on a whole Frain at one time. a reservoir could be installed, fo storing rater, the same size as the look so as to harten the filling of the lock The reservoir could be sufficied by streams. I realize the first cost of such a look would be great, but feel she the great samy in time and oferating expense would justify the expense. I which you would give this some thought and if it is himpossible I mak you would so inform me so I will not study over it or try to interest any one else.

in the United States & in Canada. Surthermore, I think that if records of the laying Thomas A. Edison. FEB 13 1811 hen's cackle could be got, Hest Crange - N. g. their use in the poultry, Gard & houses in writer. Dear Sir: as a lover of Nature, would serve to stimulato and her birds a their song, the Egg. laying instinct. I have often wished that through the power of your Shonegraph had suggestion records of the notes & Long yours faithfully R. M. Breselow of the nightingale, robin nedbreach, English thrush I blackbird, who and skylark, which make the Spring I larly summer in England so attractive. If these could be obtained I am sure there would be a large demand for them

HERBERT F. RAWLL

cation of a similar instrument to telephones ever occur to you whereby you might return to your apartment and see a red sign over your 'phone "Call 181 John"? In New York City I understand at least one half of the telephones used are often left unattended.

Imagine the convenience of annattachment of this kind which would automatically advise you upon your return that a certain party had called you.

The telephone company I should think, by a series of push buttons at central, could work this out from the exchange, and of course they would charge so much for attaching this instrument, or loan it and charge subscribers so much for each message flashed.

Awaiting your comment, I am,

HFR:MEW

Yours very truly,
W. J. Rawll m E. T.

Our Lia Edison Laboratory James Back. A.J. Dear Sir, Jam deigning and apparature to measure the first on the tour line having its rate for unnit fall of models of large vends and am booking for a motive power that will wind who the tow him on a hum at a constant rate fixed. I can't we electricity and an I have amed a phonograph for over ten years it oriented to me that a tiple spring movements would give I have to wind up a get weight on a shown of 4 inches radius at the rate of \$00 revolutions permin for 50 turns you can to give me, I am that is, I'm got to the or time of the dum in o seconde with a shaft trague of o 6 lbs. are the springe etting enough to do this for so times! The primable thing is to get the turning rate steady during this

period. Say the turning rate is 610 for minute. Les you think

the machine could be made to last for so turns without

off we than one revolution ( 5-97)? Of come Iwould have to have The gear system rebuilt to get

the form on the driving shaft, Swould very week appreciate your assistance as I don't have interes

to get a spring motor if your phonograph mue won't dr. thanking you for any informations

Very Truly your Fredrick K Land. Aux 2/17/4 The subject Sintend to discuss way suy to the woold Iwaned like to see the invention A few years ago while out with some crowings or land bookers and cacuping in the open about four well west from any soon munes but on what we supposed at the time to be an Iron range and has since partly proven to be such while arround in the woods we cover hear the flating at the wines sometimes it would appear directly under we at times to the societ at other time to the north ofus but at nothing as if it was at the west were in The Evening while sleeping in our tent

ON some browse close to the ground the blasting appeared wor distinct and as if deresty under up at some dift. In appearing of the matter to some all works were wife have browned for years throughout the drown causing they had come to the stand for years through and the drown country they had come to the stand for years through as we had that the dround appearable fallow the drown varies or leader we which ear direction they wight then from the body of ore on which the through was done, with how how he have we drown their the pool have well some compact a better conductor of sound their the fock or earth, this would seem foundly.

southing on the order of a secundary such could be invented and when bleating is being down on a body of ore at a wine if the much in stational a status, way from the tracting it wight would wheath in what which the ore body or various did thus will want to start in which direction the ore body or various did thus we have been at the stand of it could be determined at a distance

from the siene.

If the were possible is would be a very valuable invention and would save thousands of dellars both to the sience sweet aware and prospective.

Sourtime at your leasure Iwould like to hear from you. I am die.

New respectfully yours

Concinnali. Zel 4 1911

Thor. Elisan Ly

John D. Park & Sons Co.

Wholesale Bruggists

Stage and gip Sycamore Street.

Assume the power of the power

vios pres. p. K. BABSON

One of the valuable Dear st. An not quite will gorde

will you kindly rayer as in this requist it to be
direct and mail this letter to me proof

for a receiver and if a home day be delighed, on a to
be a help in careing a volce from the thight of

through a ball hope ing i am not imposeinf upon your

kindness a glance at the other sid of this of

will explane my want to you i judge

thanking you in advance for the favor i remain

yours respectfully

1014, w, 5 , st J.W. COFFEY Pt Soott kan

### [ON BACK OF PREVIOUS DOCUMENT]







THEODORE C. HAILES, JR., C. E. ALBANY, NEW YORK Petruary 21e W 1911.

Mr. Thomas A. Edison,

Orange, Hew Jersey.

Dear Sir: -

Have received yours of the 20th instant, steving ing that the device described by me is out of your line and therefore of no interest to you.

I beg to say that if you will accord mo the privilege of a porsonal visit, I am confident of being able to interest you in the theory on which it is based. A direct and what I believe to be an entirely new application of electricity is employed in the seperation of mixed gases, i.8.gases not chemically combined.

I do not desire to be obtrusive in my persistency but I do believe that the possibilities and scientific value of such a device are so great as to warrant a ten minute consideration by you.

I thank you for your attention to my letter of the 17th instant.

Yours very truly,

ALL COMMUNICATIONS SHOULD BE ADDRESSED TO THE COMPANY
VELENBORS (\*\*\*\*\*) CONTLAINS\*

The MBOORE JFILTER Company
MICHAEL HARDY
WILLIAM H. HARDY STANDY
MICHAEL HARDY
MICHAEL

Thomas A. Edison, Esq. Orango, N. J.

Dear Sir:-

Supplementing our respects of the 28th ult., we beg to advise that Mr. Clancy has returned from the West, and that he would be pleased if you will suggest a time suiting your convenience for the interview that you suggested in your favor above referred to.

нвн/н

Cast Iron Water and Gas Pipe

Squal Carline

Women are rowned overed

Consultant in case within the state of the consultant of the consult

we have in our glacial rivers, for the purpose of clearing off the

land.

Yours truly,

The Oregon Iron & Statel Co.

Secretary.

Idea & Requesti I Just found our address from the Editor of the South Baily Star and House I would right you about what? have In mind I was thinking of an Invention that would be a great help to the north I have studied it would trink it would work But Jame only 17 years ald and need some help I told my father about it and new I teld my face would work. I he dignt think it would work. I have thought of adopted different things

that I think would work If I had the Education, But the one I have been I will close poping you will the most in Ernest about is kinding give me what advise of any Kind a virles message under Watter. It would help me out greatly if your will please give me all the advice you can I would be willing to say you good for the yours truly advice if it works but atter wise of Clayton anderson couldn't afford it being not very well 114 W. Killowne Street. fixed I would have tried to get someone in this city but 9 Hought they would check me out of it and think you are the greated 94 the greated ments in the world 94 the greated munition in the world 94 the greated much which some along the following it will well help mes and the following it will well help mes and the following it will well help mes and the following. Seattle Washington will you please send me a Book much. Well gent think of any thing else of Patents wanted. Write Soon to right about so I will close expecting a returne letter Every day. gam 17 years of egi suit got layed off one to work in a week or so.

Will you Kinder 19 moterial that is flisher and trans-Joanen - In some Mago zue & nod an attick of reducing a coin to 1400 short an worn tim of your and as my train new in that Channe of foroducing something weefur to maure a I have been morring for commitine and exp. to the pormed of hove not obtained able to obtain what I manh I have tried Sain Have also Could and if I could recur Domething suission to Cellation of may he able to complete Their you king repry your Sony

Idea & Biquesto

Thomas A. Edison, Esq.,

Orange, N.J.

Dear Sir:

Delaware City, Del. 3-28-191

If ges engine manufacturers could increase the power of their engines 30% to 50% without increasing the weight of their engines more than a few per cent, at an average cost of \$5. per engine --- Don't you think think quite a few of them would be willing (some of them even anxious ) to pay a few cents per horse power for the privilege of doing so ?

If I can furnish the Know-how-to-increase-the-power-of-gasengines, are you willing, for a half interest, to write the specifications and claims for patents to cover it ?

I am aware that there are several thousand patent attorneys, and that a large per cent of them might be willing to admit that they had forgotten more about patents than you will ever know, but I am willing to take chances on you.

Thanking you for an early reply, I am,

Yours truly.



day that I am as overworked that I cannot spare time to tudy out the depice of wa an common whim the gets Heady Thomas of Edison Estern to a squery. Dead care sector the total many on of acting ottomap du long while, and the more I think about it the more I am commend that the proposition is workable, but owing to the heavy cost of construction and the present surroundings here I am unable to put it into practice, I could not comply with the patent requirements if I had the patent, owing to the cost, but I believe that if the idea was handled that there is a lot of money into it, As I am situated I cannot handel it, I am like the man who invented the air breake, I read assistance, I write to you to ask will you examine into it and adviseme, I am writing to you personaly, because I know from your reputation I can trust you, I am not willing to trust private Recratiries, that I have Drange Mew Jersey

never heard about, not that I would east reflictions against amfone, but it is just courtion, will for look into what I have and give one your spinion, I will trust you with a full and complete specification, and when you per it if you think there is amother in it, and will handel it will let you pay yourself out I it, I am convinced that there is a Whole lot in it, or else (Nothing) suhowever it is worth trying, will you return me your private address, where you alone will see my specifications and I will entrust you with the whole thing Asping to hear from you by return mail. I am old Revant Your old peroun milistone PO Saskatetuvan Canada

Edison i Wish to ask ing to the hight of the Building . the people can Slike from one Building to another please let me know What you think of this idea

it is kingsly to blick out of.  When the few is into another.  Boulding these church can Ber applied from one Bertley translew  please let me know if you.  Write Ber he knot What you think  extenses to  Thomas B. Larry  # 4 When It-  Bristot R. &		
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Bristel RS	August 10	The same of the sa
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DR. H. C. WHITE, Vaca-Passesser & Secre

A. IL HAZLETT, TREASURES

#### ARIEL LUMBER COMPANY

aux 1/5/11

CYPRESS SHINGLES, LATH, ETC. PINE, CYPRESS AND HARDWOOD LUMBER

Orange, I. J. Constant Character of Characte

Hear Sir,

an inventor like you but I have an inse that I have tried in a cruise way that I I thought you could we four that I thought you could we four the way that I thought you could we four the man are not already been it to you and if you think it to the borking out it if has not already been

tried and you can pay se whatevel bot think the tas it worth.

The ides is this, to make a clock-work attachment to our Phonograph to set as an alarm to start the machine at any given time with records to suit, and use it for an alarm to call any one up at any time same as an x alarm clock. It could also be made to stop it at the and of the record. I have used an ordinary alarm clock to start my phonograph, by removing the bell and using a string to the starting of the machine, and it never fails to wake me. Please let me hear from you in report to it.

Yours very truly.

ON. A. Clark

The worstment wored 62 Central Hotel CENTRAL HOTEL racher large to get trough NORTH WILKESBORO, N. C. very laborious un dentaleing and Mr. Thomas a. Edison, it occured to me that in-an Orange, N. J. much as the numerous streams in these mountains can for It seems quite the so small on outtor be han. order of the day to sound mr. nessed, that possibly you might Edison on nearly every phase of device some means where by the life but I want to suggest a valleys, where frost settles, cents field, which if it can be made he plantes in orchard and the praetical, will be a boon to Leating done by means of the Lorticulturests. power which would cast foracti It is my intention To cally nothing. form a company for engaging In order to plant an in connercial apple growing orchard of 300 acres in is neces. in the mountains of this state, sary to buy many times that mun possibly within a few meters of ber of acres in order to escape this pour. the valleys where there is no The Leating of orchards current of air to keep the frost by the means now in use is a

That the most practical couleung Crude pelvaleun provincesty The Trees are The Luce force afthe wind

### CENTRAL HOTEL

from settle	7		
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NORTH WILKESBORO, N. C. 191\_

CLEVELAND. O. Phil At 1911 H. A. SCHWAB, CHIEF CLERK Thomas A. Elison diar dir: page two wroke ago to the The production of viangerolan It seems the government about they years ago on the concerning theref. adout of the aroplant of the op two miles in any direction claden clauds, there comes the suggestion of renewing certain experiments or rather trying them and. Some of cloudands last physicists recentistare interested in my theories and the possible benefit to growing crops. Of course they would not apply where there was no maisture or claud formation. Time. Let us suppose that rains usually followed quet battles or Fourth of July explorious its. Was it not the little powder partiels which were added to the particles in the upper regions which could the rain. The fartiles formed much which the moisture guttied and with the lowering of temperature at similar

# PROBATE JUDGES OFFICE.

ALEXANDER HADDEN, PROBATE JUDGE. H. A. SCHWAB,

Steveland.O.

Jone get rain. This theory might he taken in view of the fact that aither a Seatch Savant has aboun that you obtain no rain, mist, or fog, without a dust particle serving us a nearline. A dirigible could congrue a scatter dust particles & get in on see four with the phiromena following a batter with luming y trapeating with a finish you that the are often laker which when it is quiet go below the pressing point without pregning, and that are amined spleading with the margin y on to would start the moderal areadjustment of the the through the start the pressing process own the entire point. A cloud might be like the point of an explosion or lawring y truperature brought about by a cold wave or explosion would start a view.

or on a cold draught or lawning of temperature could be produced in a part of a cloud by trailing a tank of Corbonic drox ide often an aeroplane os it short thany its bake giving off funciant 125° below zero, or ammonia bring sprinkled in a see tim of the Claud.

## PROBATE JUDGES OFFICE,

ALEXANDER HADDEN, PROBATE JUGGE. H. A. SCHWAB,

CLEVELAND.O

The wiship has been thought of for war and travel - why not consider the experiments which might be brought in the claude or suppor regions which on their mustine town production of rain the west saving to craps in the temperate regions.

I have totaled with the bulseciment or read the mely elapsish in rain, rain racking, dust, ask, temperature, clauds, water, agasted site food, must. It would seem that nature in law presipitation can may sit be paralleled artificially by slook, the introduction of dust, or the artificial bourning of temperature in a section or through the base of the Claud.

Out course I am only a layous and common of give a societific theoreuphness to the possibilities—only included a subject which has slot butter parted onen them them myself has before that such as persimints might be tried of your love and views on this subject on, book of the

able assistants - of you cannot do so yourself - run. the matter down of give Jam Duby close atty to Eich may your never your never down

entire matter as a chimera of the imagination,

W. M. KING ESTATES MANAGED RENTING MORTGAGE LOANS INSURANCE EXPERT APPRAISER FLATBUSH 831 FLATBUSH AVENUE TELEPHONE 751 FLATBUSH REAL ESTATE Au 4/5/11 BROOKLYN, N. Y., afrig. Thomas Q. Edwin DEn Su. I have an idea that with telephone Connection with the is in possible to lister to Vogen in your own House. during the Theater performance. I am you in the particul? If so I can see a hig fular of une for the Fromotor Tolyhous. and Theretie Manager.

Thomas A. Chism - laliting the great that wheat chase the best lead of the expression of continent. This west, I believe, is gilled to the Old World, leing wholly confined and wholly, indigenous to the New of to solle likelyte, in the world, he manifestly the fine tree four continent see of course its lumber are as palpably inscharle to to lives. Where is the one there glo is the other. To see fine fundor carpentered; which has been stationery To be and inter cargonered ough us new rangury. for becades say, flooring, lathing, studing done from to suffer shingles, clafford, etc. it interprets from its evil suffer from get and plus furniture is

not unfamiliar with its presence. It finds habitation wherever there is pine was unhappily it extends its draw domicile to furnitury of other woods.

And described to furnitury of other woods.

Some letter or not from the perhant of this letter is to ascertant solution or not from the substitutes facility, along of course skediced links, you inventive faculty, along of course skediced links, you could not give the world, then sening its facilisting gratuals, some apparatus, one of shaple construction and pulled of early application to house, bads, mutules and generally to find bluber repenser onche lenters into human service; to rid them permisently of this viscent opening. I make an apparatus, elatically of this viscent opening. of course, which will fatally shock the living bug an Affectually sterilize its with on more popularly sparking Who angle - briefly to render fine wood blowner our schools performs invocuous to and immune from firsect occupation. Could not to see immend from meet occapation. Touch not the tree oble standing, by some electrical process, he rendered immend from meet life and sommere that the immenty would extend to the lumber touch such, was after living reduces, by the confenter and joiner, to doubtic sudo! Established 1840, ON GOVERNMENT LIST.

TELEPHONE

# Shalebhoy Tyebjee & Sons,

Ship Chandlers and Government Contractors, Importers of Paints, Oils, Varnishes. Ropes and all kinds of Machinery, &c., &c.

Langther is out of May the wholerophe stolly hue but any gout you hay the wholerophe stolly have before the agricultural Experient station of monacon A. Edison Esqu., willow he England

who are one to the total the very fampace of the barry the pace of the barry that advance of agriculture in

The take the liberty of appraaching you with a view to be helped, with your extraordinary power and incollage or almost all the things, in this world, and we fully trust, you will be kind enough to let ue know come way by which the Estate count wirned fertile, for which we will always pray Almighty Gen, for your very long life and prosperity.

We possess a large Estate of land in Gujarat(India) -situated on a sea coast of Bulsar, know as Mr. Bonald Graham's Bulsar
Ehagal Estate, which measures about 7000 Acres. There is a wide -plantation of about 8000 Goccanut-trees in 65 acres of land planted
systematically at a distance of 20 feet each and having facilities of
10 wells, 6 Windmills, 2 Oil Engines,6 Gountry Bullook driving geare
for drawing water. The land is ordinarily eweet, but looking at the
trouble, which is taken to make the plantation a euccess at
considerable expense, has not been fulfilled, and we are daily -expecting to see an improvement, by giving more water than it was
originally

originally given, when it was in the hands of Mr. Donald Graham of Scotland of the firm of Messrs. Graham & Co., of England, since 1882 to 1908, we see a little improvement since 1908, but not to our satisfaction. The Coccanut trees, which we have, hardly bear fruits at an average of 10 occoanuts per year instead of an average of least 75/100. As we are very anxious to see an improvement, will you be so kind as to show us a way, by which, we can improve the Coccanut plantation and make it pay. Besides the above, the other lands we have, with the occoanut plantation, has been reclaimed, some about 2000 Acres, since 40 years and the rest about 5000 Acres, since ---26 years, by preventing sea water. Out of the above, about 750 Acres has been improved, suitable for rice oultivation, the rest has not yet improved for any orop. However little shoots of grass are seen mostly on 2000 Aores of land and partly on the 5000 Aores of land. Oan this ground be made suitable for any commonest crop ? as it will pay well being a large area. Trees, called " Babul Wood " trees (Common wood -Trees) from somewhere, on a very small portion of the Estate only. With all these particulars, will you kindly give us some advice, as what best we should do to improve our vast Estate. The average -rain fall on this side is 45/50 inches.

We shall ever feel grateful, for any advice, you will be pleased to give us, and with our best thanks in advance,

We beg to remain,
Deer Sir,
Gratefully, Yours,
Challehoy Dubju Hon

ans 20/11 New York Mr. Als. a. Edison Westing Met and evaporate snow by electricity. I believe there is a process for melting melting by using electric power. If electricity is poweful enough to mell iron, steel etc, do you think it can be used to actually dissolve and evaporate snow? While, of course, by mixing certain chemicals will know, it can be melled into water, Hese elemicals are too dangerous and couldn't be used in public streets, and then the water would probably freeze again. rather poolish of me to discuss a problem of this sort with you, for Sundershand nothing about it. So know How Hat if you do get together some machine for doing this work it will be of greater service and do more good to the people than anything brought out during this

2. a. & 2

last century, for it isn't recessary
for me to lexide all the sixtness etc

caused by dirty snow laying in
the streets.

Jour respectfully,

M. Newman.

CI- Friends - Penkins Good W. Porkins May 31st, 1911. Valley Road, West Orango, N. J. My dour Mr. Edicon:-This note will serve to make you acquainted with Mr. Bassett Cadwallader, the gentleman I epoke to your secretary about over the telephone this morning. If you can spare him a few moments of your valuable time, both he and I will appreciate it. Green Perkun Mr Cadwalladar Called on me his scheme is "petetunt dication" ofthing something Telogroph ALBERT H. BUMSTEAD Mr. Thomas A. Edison. Orange, N.J. My brother has written you matic, high speed, printing telegraph for have made patent application. We are young men in the and now that we have designed that and speed we believe to be superior to any printing telegraph, we need advice as next more toward placing our invention will do the most good. I appreciate how busy you are with Lings that you know to be worth while and that am asking a good deal when I ask you to give my brother a half hour interview. belief that you will be enough interested in his explanation of our telegraph so that you will not consider the half hour wasted. Hoping for a favorable riply Respectfully yours Mart FL. Wunstrag.



Your world wide reputation has induced me to troubld you with the following:-

As by talking in the Cremephone we can have our speeck-es recorded why can this not in some way act upon a typewriter and
reproduce the speech in typewriting.

Under the present condition we dictate our matter to a shorthand writer who then has to typewrite it. What a labour sav-ing device it would be if we could talk direct to the typewriter itself. The convenience of it would be enormous. If frequently occurs that a man's best thoughts coour to him after business hours and after his stenographer and typist hay loft and if he had such an instrument he would be independent of their presence.

The days of sitting down and writing down's thoughts are now over. It is not alone that there is always the danger in that process of striking out and repairing as we go along, but I am their process of striking out and repairing as we go along, but I am a striking out and repairing as we go along, but I am their thoughts won't run into their fingers. I remember the time very well when I could not think without a pen in my hand, now the reverse is the came and if I walk about and diotate the result is not only quicker in time but better in matter; and it coourred to me that such an instrument as I have described is posmished and that if it be possible there is no man on earth but you who could do it.

If my idea is worthless I hope you will pardon me for trempassing on your time and not denotine me too much for my sturpidity. If it is, I think it is a mechine which would be of general utility not only in the Commercial world but also for Public

Speakers etc.

I am unfortunately not an engineer only a lawyer. If you care about wasting a few lines on me, drop a line to Philip Stern, Barriett-at-law at above address, marking 'Personal' & 'Swrat' on the lotter.

Yours very truly,

9 88 Sir Theat into Electricity, as a pure labrippleasure. My Jirst thermo batteries julded 1.5% Delectric energy out of 100 Calories of fuel on 1898 I had gone To 5.8% of Watts out of Doo? possible. In 1906 That obtained 28% of electrical Equegy grom 100% Calonics, but my battries were spail. I now have improved this so that I obtained recently 1000 Framo denat alchel Burnt = 7400 Kilocalories 1100 Wattseands yielded 1900 Kilocalories. or about The batteries are now durable frat least 5 years. a battery of 1000 Watthous night cost 200, wigh 100 kilgr. But I ampettedly outside the tekels within theels . If Hake a patrut, it will be simply 75 lost to me. If you can use the ideas, I sell them very cheap. ama through analyt chemist & mechanginees, but rotten in business Lows, very buly 278W. Wale St. room 2 ? arym Wilwauker, Wis.

Compressed air Phila Ju Othile mile 3 31 aus 6/15/1/2 Electricity I noted that the has patiented the reheating of comprised air which I would like to have some improvemental If you have some on the market Finder bend me some data - and if same kroses what I need Smill gladly get in touch with you I wheet to get some device where compressed air can to heated and carried a distance of 5ft if you will Budly give me runation It will be lappreciated Oporosser thules

Lightmy Roto Staatsburg, Duchuse G. Mr Monas a Edison -The following questions on this she Flat like cample which of alclose Do you consider this rod, because of construction & funty, as good or fitter than other makes Do you consider a rod of this Kind absolute for How for apart should the distributing about binches high to placed. One high true close to a house a protection from typhin and to what extent

advice roding would you Luch trees, or The hours are The Thous, placed in rural houses, harmber under grounded, and do for recovered the cysten marked in the exclosed took on page 29-ble the information found in this book, such as can to relied upher, so far at the laws of lightning are concerned are The Static Machines used in The Study of Electricity, a do Thy gin a true demonstration of conditions attenting a a personal uply will be gratly appreciated, and any other tel formation for may deem het to gin will he excepted with many thanks. Very Respectfully Jours Settus E Vandon Startshirg, Duchers G. My.

120 Hackensock Str. June 20. 1911 JUN 28 0 Thomas Cd. Edwar Esq. Drange CK. J. Dear Fir. Will you kindly take the time, to read this they and give one you answer year, No. if my idea is practical, to are dir in place of stuffing. in Mattressel, and juillows. O mill be ever.

31 R. 40

Edward Say that I gently at my little say at a maple Sam in a paper more than Lover Del July 6 4 1911 Mr. Thomas A Edison a year ago that you was making an Atomobile Show to take the place of a Eubber show that is now in general rise. Thave watching the Atomobile news eversince hoping to find Something more about it for I have great faith in all of your undertakings as you generally make what you undertake a success If you have the time to spare I avoiled be pleased to have you tell one somthing about it when if you know that they will be for sale and what you will use to take The place of the air Inte in fact all you may be pleased to tell me will be very interesting, me for 3 feel very much interested in them for I am tired of the air Fube and would be glad to own something That is an improvement over there yours Merry Prespton Enoch black

### CLINTON GRAHAM & CO. IO WALL STREET

NEW YORK July17th,1911. Door Sire

In bringing before your notice the following I truet you will consider the eams as confidential if the idea does not appeal to you, or if it has not already been thought of. It is my desire, naturally, to profit by any result that may be obtained, should you deem it worthy of consideration, and the came be perfected and be a success. Being a New Morker bred and born, 4 have been and an a constant traveller on the various transportation lines in this city, and there has been in the past, and is daily brought to my notice the great inefficiency of all said lines in announcing the names of the immediate and future stops. It is not necessary for me to dwell upon the importance of having such stops, so announced, that each and every che in a car, either crowded or otherwise, may hear, or the duty that the companies owo to the travelling public in this respect. It seems to me it is too self evident to need persuasion. My idea is to have a phonograph placed in the ceiling of each car, in the centre, of course, with a horn pointing towards each door, that the machine may be wound either electrically or by hand, and a record of sufficient length be made, so as to include each and all stops, and to announce the next station. The machine can be easily operated by a small attachment to the car which in turn could be tipped by something fixed upon the station platform. Your phonograph is the only one adapted to this idea, owing to the possibility of making a record of any length desired. Of course 1 have only theorized upon this, and am not an inventor in any way, and it would therefore be impossible

T. A. E. #2

for me to complete the detaile, but I am certain it would be a perfect system of announcing, if it can be perfected. My only doubt about it is the cost of the machines, which I fear would be too expensive for the companies to install. Hoping I may have the pleasure of hearing from you in the near future, I am,

Yours very truly,

CRONDAGA

The Thomas B. Eacon, N.J.

Dear Sir:

Recognising in you the forement practical scientist offerrange and and one who turns hie genius to meeting the mechanical nagody and one who turns hie genius to meeting the mechanical nagody and removing the difficulties which frequently beset manikind, Plave the honor to eugest and submit a practical problem fod your consideration and solution.

Before submitting the problem however, a short explanation is necessary. I am a commissioned officer in the U.S. Revenue-Outter Service; and I have direct knowledge and experience of what I write. <u>Frequently</u> Revenue-Outter and other <u>see-going veceals squipped with officient wirelessivelepsuch plants</u> (as now required byhlaw) have the most urgent and vital reasons for meeting or falling in with, at see, other veceals similarly equipped, in the very shortest possible time. For instance in the case of a marine disaster, when an endangered or dooms steamer summons to her immediate accitance any vessel which may chance to be within wirelessicall, to eave the lives of those on beauti

When such a call has been heard and answered, the distressed vescel usually indicates her position to her would be resour in terms of "Institude and Longitude", and the resour "shapes his source" accordingly. But very often due to fog, cloudy weather and consequent impossibility to take astronomical sights, ocean currents or other causes, the oxac position of one or both vescels (which are trying to meet) is only approximately

known and cannot be determined with precision; and so accurate courses oannot be pursued and frequently much valuable time is lost in searching a locality before getting together; notwithstanding that both ships may have been in almost continual wireless communication as they approached each others vicinity. Under such circumstances, I have noticed that an experienced wireless-operator may be able to give a navigator a helpful clew, in a general way as to whether the two vessels are nearing or becoming more dictant, by noticing whether the other vesselle meseages continue to be heard louder and louder, or if they become fainter and fainter; and by the intensity with which they be heard may even hasard, an opinion af to the distance off of the other vessel; but the receiving operator by means of his instrument cannot tell in what direction the vessel talking to him lies.

The problem then, which I submit and the difficulty to be overdome, is the invention and construction of some meschanical or other appliance or attachment to be used with the wireless-telegraph which will indicate to an operator the direction of the vessel or station whose messages he may be receiving.

Such an invention if placed on the market would not only be useful in facilitating vessele meeting at sea, but would also be of great value in fog and other thick weather in preventing collisions; also in clear weather when several similar vessels appear on different parts of the horison it would be of use by means of indicating the direction in identifying such as messages be exchanged with; and it be desired to speake".

Very respectfully,

W. A. Willy, 1st Lieut. U.S.R.C.S.

Addrese: #

ut. W.A.Wiley, U.S.R.C.S., U.S. Revenue-Cutter ONONDAGA? Norfolk, Virginia. 200

M. C. DENNET

South Mala

SPENCE & BENNET
ATTORNEYS AND COUNSELLORS AT LAW
CAMILLA, GA.

Mr. Thomas A. Edison,

Orango, H. J. har Voy, 1 charles sureve

Dour Sir:

In listening to a phonograph last night an idea occurred to me that I decided to submit to you to see if there is an time; in it. It is very probable that the same idea has already occurred to you and the experiment tried.

As our ears are situated a few inches apart, just as are our eyes, it occurred to me that possibly thore was such a thing as a "perspective" (if I may so call it) to sounds as there is in looking at an object; and that possibly, in making a phonograph record, and reproducing it, with only one needle, did not give the sound the proper "perspective", just as it is necessary to have a stereoscope to give a picture the proper relief. I thought that possibly a more life like record and reproducing of sound could possibly be made by having two recording needles, situated in relation to the sound about as the human ears are, and a double repreducer. If this idea has not already been tried I summit to you for whatever it may be worth, if anything.

Yours truly.

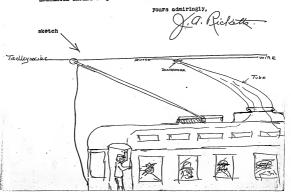
MicBernich

(Marofre

99 Claricsa St, Rochester, N.Y. October 23rd, 1911. Say

Thomas A. Edison, Orange, N.J.

Dear Sir:- Would it be practicle to arrange a phonographic transmitter on top of a trolloy-ear and have it amnounce the streets by coming into contact with records of the streets, strung up paralell to the trolley wire; short a traight records atrung up midway between streets. With such an arrangement it seems possible for any oar to run over any line and automatically amnounce the next street to the passenger who are too often strangers in the cities and mixunderstand the conductor. With such a rig there sould be nothing to look after but the phonographic mechanism should it got out of order.



rivo; Kning that wenten that I have der 10 South standard The h ligher sfeed, but otherwise the W. T. OSBORN ELECTRICAL CO. ELECTRICAL ENGINEERS AND CONTRACTORS Contral Station and Isolated ELECTRIC LIGHT PLANTS Installed, Complete

W. T. OSBORN ELECTRICAL CO. ELECTRICAL ENGINEERS AND CONTRACTORS ELECTRIC BAILWAY FOUR Control Station and Isolated ELECTRIC LIGHT PLANTS Installed, Camplate Long Distance Telephones, 828 Mair plainly typewort

W. T. OSBORN ELECTRICAL CO. ELECTRICAL ENGINEERS AND CONTRACTORS Central Station and Isolated ELECTRIC LIGHT PLANTS Installed, Complete KANSAS CITY, MO., WILLIAM T. WELLS, COURNE, INDIAN RIVER, FLORIDA. November 28th, 1911.

Thos.A.Edison, Esq. Orange, N.J.

Dear Sir:-

Having been connected with the development of so called "Rustless from" produced by the Bower-Barff and the Wells processes it has often occured to me to ask why exidized charcoal iron could not be used to advantage as a pole of the storage battery.

I am the inventor and pattentee of the "Wells Process". But I know very little about storage batteries and theream writing to the man who knows most about them. I am told by an engineer that in your new battery you use

flakes of pure iron in glass receptacles.

Thy would not the almost pure iron between the oxide coats of x sheets of charcoal iron be lighter and perhaps better? As you know, the magnetic oxide coating (especially that made by the Wells Process) is impervious to a rather strong mixture of sulphuric acid and is also a very poor conductor of electricity. By drilling holes thro the sheets your electrolyte would be able to reach the inner iron. Porgive my taking up your valuable time if the idea is of no value.

Very truly yours, :

N. J. Mello

# MELBOURNE HEIGHTS

SHOWING LOCATION OF LOTS, SOME OF WHICH ARE STILL UNSOLD.

All Lots are offered subject to previous sale.

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Our Lots are on the High Table-Land Overlooking The Indian River.

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# SECTION OF THE EAST COAST. MELBOURNE, On The Indian River, Florida.

In Deciding at what place to locate a WINTER HOME there are several things of great importance to consider.

FIRST is the healthfulness of the proposed location.

SECOND is whether the place is accessible to the rest of the world and in a beautiful situation.

THIRD, is the place in the hack woods or will one have the henefit of good Schools, Ohnrohes, Stores, Physicians, etc?

nit or good Schools, Chartenes, Guores, Frystomes, etc.
FOURTH, is the place settled by congenilal, and educated people!
All of these questions can be answered satisfactorily in regard to

Mil these queen and the Mast Coast of Florida, about nid-Melhourne is a small town on the Rast Coast of Florida, about nidway between Jnoksonville and Miaml. It is not so far South that the qlimate is enerwating, and is far enough South to insure pleasant days

all the winter through.

There is an occasional frost here just the same as there is a frost

now and then away down South of Miami.

The land here is suitable for growing Oitrus Fretis and niso regulates. All our lots as offered in this circular are hig enough to grow a few enumes and other fruit trees, and the larger lots are many of them hig enough to raise Ornages, Grapefruit, Tangerines, Limes, Glauviar and Veçchathen for a hig finnily and some to spare.

There is an abundance of good healthful water at Melbourne. This makes for the healthfulness of the place, as no town can be in a good sanitary condition that has not plenty of good water for drinking and other purposes.

The train service on the Florida East Coast Railway is one of the finest in the South, and Melbourne is one of the big towns on their line.

Melbonne is located on the Indian River, which is a body of salt water, and is really a SOUND and is not a river. The Indian River at this point is two miles wide, and just beyond

the strip of sand on the East side is the Atlantic Ocenn.
Surf bathing can be indulged in the year through.

Melhourae has a number of good stores, three churches, and a good school, while one of the County High Schools is only four miles away. Melbourne is not a manufacturing town, but a residence town for

well to do northern people who spend their winters here.

There are two good Hotels, and n lnrge new one is being planned.

As there has here no BOOM the prices of lots and acresge land are still very reasonable.

Come and take a look at Melhonrne, and if you like it hay one of our lots and holid yourself a home where life is easy and where there are no roal hills to pay.

For further partion lars adds

WILLIAM T. WELLS, Melbonrne, Florida,

ROBERT H. KANE ATTORNEY-AT-LAW RIS CORONADO BUILDING PHONE MAIN 4951

au 12/7

Denver, Colo., Dec. 2d,1911.

Mr. Thomas A. Edieon,

Menlo Park, N. Y.

Lee Collect Message Collection of the Collectio

Dear Sir :-

your good will for anyone who has an idea and like in imparting the and exploit it. Very recently in the auditoring at Denying at a public concert, I became lost in thought one to Denying at a public concert, I became lost in thought one to Denying with ease all over the building. My thought together with ease all over the building. My thought together further is there not electric machinery today wach, point but illed for this purpose? We have osone machines to purity and the purpose. Does purifying the air aid the canding of the arm of the air aid the canding of the arm of the air aid the canding of the arm of the air arrying sound? Gould we get have a common or ideas that would accomplish the purpose. Music coming over the water acquires a sweeter tone. Is there a principle there that can be used?

Your correspondent in writing

In talking to a friend he says: " Write to Edison," Hence

I am,

Very truly yours, Charles & Deg.

9+R.

# THE HOPLEY PRINTING CO.

THE EVENING TELEGRAPH, DAIL

BUCYAUS, OHIO

Bucyrus, Ohio, Dec. 10, 1911

Thomas J. Edison, Orange New Jersey.

Ozimigo non transiti

Dear Sir:-

12/13

Went into my office tonight and it was dark and I groved around in the dark for the incandescent.

Why could not a very small incandescent be placed on the but of an incandescent or on the tumb snap you snap then off and on by to burn constantly as a tell tale so you could locate them readily.

If the idea is worth any thing use it.

Very truly yours,

The Hopley Printing Co., per J. W. H. Mgr.

It could be done but your Could point a cerece I foot will Balman with Balman built of well Olore up surlight in day time of shine all night

YOU'LL FIND BOTH OF THESE PAPERS ON PRINTER'S INC ROLL OF HONOR ADVERTISERS. PERS THEM THE BEST NEWSFAPERS.

## Edison General File Series 1911. Articles (E-11-03)

ettris fonder contains correspondence requesting Edison to write articles, letters from journalists seeking to interview him, and unsolided correspondence relating to articles about Edison or his inventions. Several items pertain to an interview concerning German industrial organization. Horrespondents include Richard H. Edmonds of Manufacturers Record, Robert Underwood Johnson of Century Magaziner, Roger W. Babson of Reports; and journalists Edward Marshall and Arthur B. Reeve.

Approximately 10 percent of the documents have been selected. The items not selected include requests for interviews and other routine correspondence regarding articles and interviews.

Pres 3-11-10-2M



JANUARY 8,1911.

Mr. Thomas A. Edison,

CRANGE, H.J.;

CEAR MALDISON: WILL IT BE CONVENIENT FOR YOU TO GIVE THE WORLD A FEW MODERTS AT SOME TIME!

ON TUEBDAY OR WERNESDAY, WHEN I MAY TALK OVER STAFF FOW A MATTER HI WHICH WE ARE MUCH INTERESTED, AND ON WHICH WE GHOULD LIKE ESPECIALLY TO HAVE YOUR OPINION BY REASON OF YOUR WORK
TOWARD THE PHYSICAL WELL-BEING OF THE PEOPLE?

WE SHALL VERY GREATLY APPRECIATE YOUR COURTESY.

SINCERELY YOURS,

H. P. Brazell

EDITORIAL STAFF, THE WORLD.

Yes if you and a High brow

Edus.

gold

Metropolitan Club Mifth Anenne & Sixtieth Street

Den M. Edion

I requested the stewarther to petion the

hotes you tundly leat wee. May were sent for you in

M. hillar care Suffer you here seen the cust cliffings in se Tary chap the work Frontier of Frank

# [ATTACHMENT/ENCLOSURE]

# Manuscrobs, Assary C.-Production of the Control of

GOLD PRODUCTION FELL OFF.

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PARIS SERLIN ROME

Mr. Thomas E. Edison, Orange, N. J.

Dear Sir:-

STORY STORY

any lemo

If it is convenient to you we wish you would favor us with an appointment to make some Photographe of yourself in your laboratory.
"The Business Magazine" who in their March number are publishing an interview you gave to one of their special writers, are very anxious to have one or two special photos to go with the article, and have asked us to try and arrience with you to get these pictures.

We have made pictures of you some five or six years ago but as they have already been published in papers all over the country we are more than anxious to get some new poses.

Awaiting your early reply.

Very trown Brothers

Publishes.



BOSTON, MASS.

Reid This

21st January 1911, Water

Mr. Thos. A. Edison, c/o National Phonograph Co., Orange, New Jersey.

My dear Mr. Edison:

Was wondering whether I would be able to see you before you leave for Florida. You know I alout ways feel that a year is quite incomplete unless I can have the pleasure of shaking your hand and paying my respects.

Am sending you copy of our Florida issue, in which I shought you might be interested. You will be glad to know that it has made a success far beyond our most sanguime expectations.

With cordial best wishes, believe ms

Yours sincerely,

inc

9016

OF SONO OFFERINGS

ROGER W. BABSON

Pachan = 9 am very much alruck

and Called the Clancy process 23 911

Thomas A. Edison, Esq., Moors Filter Co 170 Orange, N.J.

Deer Mr. Edison: each structure of the Lower Course of the Course of t

you would like to have me write these people.

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Very truly yours,

W.B.P.

Jogn W. Baken

different obtained from sources believed to be occurring our reports and opinions ove not guaranteed. Moreover

793-500

Rut 247 WEST 104 STREET. Suy James Jepro. 11 In 1897 when Iwas in hew york you very Kurdle saw me and gave me an interview which Spublished in Pearson's magazine in Law in her york for ten days now boned con see me one day at your Convenence Pohaps Smight beable to worte about Your new Storick battery in fondon, knd other matters in which Jonare interested of you will see me and furnish me with clustrative thotographer. Tousting, & hear from gual your Carly Convenience

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BY

HAROLD H. U. CROSS

With 12 Illustrations and 66 pages of Text

#### CONTENTS

The Charging of Accumulators—The Repairing of Accumulate

E. & F. N. SPON, Ltd., ST HAYMARKET, LONDON, S.W. Spin & Chentederne 123 Filedia, Street N. York

Architect and Engineer son Falls, SK, Y., March & th 1911 Thomas A. Edison Orange N.J. Dear Sin I have been a student of the economic problems involved in the question of a just and proper medium of Exchange. Formit me to say, that the basic truths profounded by you in a reported interview, as Aublished in the saturday Evening Fast of Dan 14 and It. 4th, go to the very foundation of the whole monetary question. In a few sentences, you state more of vital interest To lumanity Than will be found in the eighly volumes of the report of the Monday Commission The use of the presions metals for a medium of exchange, is a relie of bashinism; fitted for the conditions of the former migratory bribes on The planes of Asia. Bom statement, in substance, that the only function of currency is to provide a medium of exchange for weeful commodities, is the mhole story m a mitshell. And notwithstanding your wonderful achieve mento in the past, the great service to the race

Civil and Mechanical Engineering, also 34 Years

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James McCarty Architect and Engineer P. O. Box 168

2. C P. O. Box 168

Hudson Falls, D. Y., of CMch 4 1911

plich you could render, by Educating The suple in the truthes involved in the one-all importent, and greatest question of the zero, would redound to your emeasting andit. The late Instile Brown agond will you, exactly, so to the dangers threatened by constantly piling up evidences at indebtedness, which are never to be faid. Gon may not leave taken the brouble to compute the indilitedness of om people, m all directions, at the prosent time. Jaking all the Memo of indebtedness, they amount To more than all the realisately value in 1900- Mich mas 55:000,000 000 \$ 21- mould region all the money in the country to pay the intenst on this sum for a single gran to say nothing of the principle, which it is the voling of the financions norm to pay. I mill send you majozine articles, by your lumble sevent, on This great question. (semestructons)

ROGER W. BARSON

m. mass. Nch. 8/11

Mr. Thomas A.Edison. ,Orange, H. J.

1 AR 9-

Dear Mr. Edison:-I herewith return, as per request, the letter which your secretary has sent to me and was much interested in reading the same. Of course I have received a the same. Of course I nave received a number of complimentary letters; but have not sent them to you because I do not wish to unnecessarily trouble you. In fact, the entire interview was splendidly received, and although I do not sak it, I should be very glad to have you semestime send me notes on another interview which I could use.

on another interview which I could use.

I also wish to take this occasion to congratulate you on the name of your new corporation, namely, "Thomas A Edison, Inc.".

Certainly your name is a great asset and it has always seemed a shame to me that it has has always seemed a sname to me that it has not been used more by your various corpo-rations. In fact, I have felt that it was a great mistake to have your phonograph company called "The National Phonograph Co." as it lacked your personality, which is what we all admire. With kindest regards to Mrs. Edison and yourself, I am,

Very truly yours

B.B.P.

193-500

THE PSAKA MAINICHI SHIMEUN. (OSAKA DAILY NEWS.)

OSAKA, IOth, March, III

Dear Sir.

With every respect we implore you to excuse us for "Witing" to you without due regard to the usual etiquette observed on those occasions, and and also for troubling you for doing us a favour.

The "Osaka Mainichi Shimbun" (the Osaka Daily News) is going to celebrate its attainment of the ten thousand number on the 22nd. June this year. To commemorate the occasion we are going to publish on that day copies consisting. Toe pages, and among other octentes we contemplate to reproduce the faceimiles of writings by celebrated men and women of the World. It is with this view that we venture to write and ask you to grant us a favour by your letter. However, we do not dare to hops too much. What we desire and shall be satisfied with will be you signature and , if possible, your writing with it. If we allowed to nuggest, however, we should doen it a great favour as well as a great honour if you would be good enough to write a few words by way of congratulating us for the celebration of the cocasion:

### THE PSAKA MAINICHI SHIMBUN. (OSAKA DAILY NEWS.)

Osaka,	19
--------	----

Will you allow us to present you some facts concerning the "Osaka Mainichi Shimbun" ?

- The " Osaka Mainichi Shimbun" was established on the IIth, February ,1882.
- The Osaka Mainiohi & Co. publishes another paper in Tokio in the name of the "Tokio Nichi-Nichi".
  - The registered circulation on the Ist. January, 1911 is 218.798.

    ( It is a publicly admitted fact that the \*Osaka Mainichi Shimbuß has the largest circulation in Japan)
  - The "Osaka Mainichi Shimbun" has its special correspondents in the principle capitals in Europe and America".

We beg to send you under another cover a copy of the "Osaka Mainichi Shimbun" whichi will we hope give you an idea of the newspaper. Hoping you will kindly meet our desire and thanking you for your favour in anticipation.

we remain , Dear Sir ,

Yours faithfully,

M. Watanabe

Paklesters in the books or majorines? march 27 I Ravent Red time to thank In for Leading me the Tholograph of your Cement - house type . It's ven we have a neat and freth but I believe a first rate Thehitect would interview with Zor, infrare on it. Son know of het waldo Madis a big idea of Journ, however, for which many mide rise up and all you interesting it is we hope to Win it before blesses. an you tell as of 9 Collapsible A Externa fire creape fintale portrail - of your that can be drown out of the window before one is sufficient? self of a good Tailer which consider Some staircess are not retirent in the star than the star with smoke. This there is along information of the star of the start of the s that hapit less reproduced

#### [ATTACHMENT/ENCLOSURE]

Tullsign Church there is a lulian of anethod

April 3, 1911 Do not want to cuter the death Contraversey & publicly Orange, N.J. Dear Mr. Edison: I am very much interested in your concluding remark in your note of the 29th of March, that you think there is a good solution of a method of making buildings death proof. Do you mean to refer to the cement house, or is there something else that you have in mind, and if so is it something you could describe in an Open Letter addressed to the Editor of this magazine? We should certainly be very deeply interested to have your views on this important question. Awaiting your kind reply, Sincerely yours, . h. Tohuson realize ther you are righer in not having your portrait he first rate artist yours of his in the act as the fight King of Supland who has many word

There be placed , one or more Vertical circular Columns of Goelen plate steel, lines with fire bouck of Closed at the top with double does to stop all draught The Exclum Ending in tachander leading to select also of ated lined with frebreg Cercular slains very swall slaps and and once wither column They would be safe for from 1/2 To I hover on longer, The column will would be taupported from the bottom

Per. 1 Home



East Orange, Now Jersoy.

Wy dear Mr. Edison: --

Ruclosed horswith is rough draft of article which I prepared. Could I ask you to see if there is anything objectionable in it, and could you not have your socretary sond on some photographs suitable for illustrating this sketch? Have the coment house but want something more to make the article as attractive as possible. Remember I have no sensitive bumps and any alterations you make will be greatly appreciated.

With cordial best wishes, believe me,

JEC::F (once)

Returned June 3/1911

L. Handwordeney

[ ] UP 1, 12 1, 19 [ ]

Becoon

Thousant population be a factor in your tables, as you compare many years together and
statutes of Totals in
Trada affairs weekah seevel ahow
Decorporty for 45 Hullion people.
would forplied to go william
and west depression
and the second second and the second
Ulroon

Puletin.

ECONOMIC ENGINEERS BABSON'S STATISTICAL ORGANIZATION

ROGER W. BABSON, PRES

OSITE CIBOULASS OF BOND OFFERING

WELLESLEY HILLS, MASS. July 18/11. feneral or sourced

Mr. Thomas A.Edison. Orange .N.J.

Dear Mr.Edison:-

Deer Mr. Edison:
Your suggestions of the 12th received, and of course in our line of normal growth, that is, the line IT on the Compate line, the population is complete line, the population is complete line. The provide is the line is the line in the line is the line is

ILINO OFFICES

I do, nowever, think it would be well to follow your suggestion and have a table for population on the large desk sheet and if it is possible to make the same up by months we will do so.

we will do 00.

I am wery glad to hear from you again and I am even nor receiving letters about the Saturday Evening Post articles which I wrote concerning you. Sometime when you again feel like telking on financial or economic subjects, I wish you would be good enough to let me know in order that I can come down and get enough to tet me anow in truer these to can come down and get another interview. As both Hrs. Raison and you can trust me implicitly not to discuss religious questions or other personal scriatro, I sincerely trust to hear from you within a couple of weeks and receive permission to come down. "ith kindest regards, I am,

B.B.P.

P.S. You know the Saturday Evening Post now has nearly three million circulation and there are few people whom it is willing to speak so favorably of as it is of Thomas A. Edison.

uplister . Pablication

Oct. 13,1911

nur york city
This a. Colison
must write base
1 to day may
ball game Saturday, way
I come monday morning
answer
Edward marshall
110
N/S
A
Postal Tegraph + Cuble Co.
- 1 ozazan sar faran

300

LETTERS TO .

House of Representatives A.S.

Mashington,D.C.

Oot. 16, 1911

STATION B

We are seeking an expression of opinion from the most eminont solontists, writers and statement of America and Europe on the following questions whay is it that Socialism continues to grow by lasps and bounds despite the fact that it has been an intellectual bankrupt ever since Herbert Spencer drew up his unanswered and unanswerable indictaont against it? What is your explanation of this paradox? ... In other words what is the alternative to the Socialism now threatening civilisation and how can it be attained? Do you think, with Cairnes, that some form of profit-sharing is that alternative?

Again: our readors would be glad to know your opinion of the attempt to harmonine Socialism with the latest scientific thought? Do you think that Socialism can find any sanction whatever in the principles of Brolution?

What; in your judgment, would be the effect of Socialism upon the interests of literature and art and especially upon the interests of inventors? Can you conceive of an age of great invention, of great literary and artistic achievement, under a regime of Socialism?

It is quite superfluous to add that if you do us the honor to communicate your views, your words will be read with deepest interest in all countries.

Will you also honor us by accepting the various issues of our magazine?

Thanking you in anticipation, we remain,

Faithfully yours,

Prof. Thomas A Edison, West Crango, N. J. Basil Burkill

# The Anti-Socialist

A Monthly Magazine Published at Washington, D. C., U. S. A.

### **Our Indictment of Socialism**

SOCIALISM: AN ACT TO AMEND THE ACT OF CREATION

Hen. V. L. Derger (de Schellin Congressum, condemns competition.) I spears to be an irreparable calamity that Mr. Berger win so that to be person at the creation. In that case, the words probably have saved the Creator from the unitable of building the world on a connective plan. As the control of the con

### Monopoly the Death, Competition, the Life, of Civilization

Socialists very eloquently tell us that private monopoly spells stagnation and social death. But, Dr. Socialist, you do not change your indictment by changing your adjective. All experience declares that you can prove an even stronger case against public monopoly.

### Maxims of the "State," Showing Why It Fails in Commerce

What is everybody's business is nobody's business; therefore public business is notoriously neglected.

What is everybody's profit is nobody's profit; therefore we need not look to the question of profit.

What is everybody's loss is nobody's loss; therefore if we lose a few millious, no matter; no one has lost anything.

#### Liberty the Very Breath of Progress

The role of the public may be the voice of God when it is strictly attending to public business, but when the public intermediate in my private efficies in an object of the strict insured.

1. The public intermediate is my private efficies of most interpretation of humanity is efficient of the public and indicated and interpretation for insulativities of the most individual initiative and private enterprise are the indicated initiative and private enterprise are the individual initiative and private enterprise are the indicated and private private interpretation of the most individual private individual initiative and private enterprise are the individual of the local strictly individual initiative and private enterprise are the individual of the local strictly individual initiative and private enterprise are the individual of the local strictly individual initiative and private enterprise are the individual of the local strictly individual initiative and private enterprise are the individual initiative and private initiation.

#### The True Formula of Political Freedom

All the great notifiers of Liberty have said that in order to present the popule aspirant the excessor, of constituted activative rate und be a power being the firm government—the enoughstude force of public cylindow. When Scientifica says, "Don't facer the State, but he the State," they betray a portentional simulative; in assuming that when the second sec

#### Socialism the Sirocco of Civilization

Arthur Young nies wat begeine when he nied to "Ou's a man the source sequence of a root, was he was the min file for a grantfor." O'the is one of the root worked Socialism model invitable bedainment. But Young did not tell the whole truth. The whole truth is their the surrest way to true a garden into a desert is to make possession incorres, to adherdise public interest for princia incorres, public property for sprince processor. In the contract of the principle incorrest, public property for sprinciple countries of the first garden quots of the world and minuted them's not desert. Socialism social processor of collisations, one was the root. Socialism more recy could be not a desert. Socialism social processor of collisations, one was the root. Socialism

### Socialism and Its Reign of Regimentation

### UNEQUIVOCALLY GONDEMNED BY THE GREATEST POLITICAL THINKERS

### Jefferson's Indictment of Socialism

The natural progress of things is for liberty to yield and government to gain ground.—Jefferson. Were we directed from Washington when to sow and when to reap we should soon want bread.—Ib.

I do verily believe that a single consolidated government would become the most corrupt government on the earth.—Ib.

What has destroyed the liberty and the rights of man in every government which has existed under the sun? The generalizing and concentrating all ears and powers into one body, no matter whether of the autocrats of Russia or France, or of the articlerats of a Venetian Seante.—Ib.

If the employes of all these different enterprises i (roads, railways, basis, great joint stock companies, public learlities, municipal corporations, and local locards) were appointed and paid by the government and looked to the government overry rise in life, not all the freedom of the press and popular constitution of the legislature would make this or any other country free otherwise, than in name—J. S. Mill.

## Spencer and Mill Con-

Where everything is done through the bureaueracy, nothing to which the bureaueracy is really adverse can be done at all.—John Stuart Mill.

Socialistic legislation restricts the liberty of the citizen in two ways: First, by lessening that portion of his ctraings which he can spend as he pleases, and, secondly, by augmenting that portion taken from: him to be spent as public agents please.—

Financia Quesary affermed ture priorities varieties as in the set of all members comment and social science; (1) Perional property and freedom in the set of these property; (2) The necessity of the most theorough competition. (2) The necessity of sub-limiting significant in neutral necessary of sub-limiting significant in neutral necessary of the set of the set

The inevitable effect of Socialism would be to sacrifice liberty on the altar of a procrustean conception of equality.

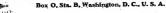
In the interest, therefore, of political freedom which it violates and derides; in the interest of commercial freedom which it openly seeks to destrup; in the interest of 4rt and Genius which is would sterlize; in the interest of the Democratic principles which it contravenes; in the interest of the home which it threatens, Societlam must be destroyed.

The first number of THE ANTI-SOCIALIST will appear Oct. 1st, 1911. Price, \$1.00 a year; 50 cts. for 6 months, 50 cts. for 5 months. Foreign subscribers may send dollar bills. Clubs of three or more, 70 cts. a year.

GET BUSY AND SEND IN YOUR NAMES AT ONCE. IT IS INDISPENSABLE TO THE SUCCESS OF A NEW PAPER THAT IT SHOULD HAVE A LARGE LIST OF CASH SUBSCRIBES. This is necessary to secure for it. Second-class Rates. How SUB-SCRIBES QUICKLY SUBSCRIBES TWICE. We applied to our patrons to act promptly and as generously se they can. ADDRESS.

JOHN BASIL BARNHILL,

Editor and Publisher of THE ANTI-SOCIALIST.



PUBLICA

L. P. ALFORD
ESTOR

E. A. SUVERKROP
F. H. COLVIN
E. VIALL
J. D. MOOMRY
ASSOCIATE COTTON

### American Machinist

PUBLISHED WEEKLY AT 505 PEARL STREET
NEW YORK

PRESIDENT
MABON BRITTON
MANAGES

P. A. HALSEY
COITOR EMERITYS

Mr. Thomas A. Edison, West Orange. Cotober (War John

Dear Sir:-

A short time ago the New York World published an alleged interview with you in regard to German mechino shops. The manager of the German edition of the AMERICAN HACHINIST writes me that this article has created a great stir over there and has offended many machine shop proprietors.

Knowing as I do that our daily press frequently distort facts and have often misquoted you in the past, I assume that the same thing may have hepponed again. Will you not pernit me to call upon you, discuss this matter of German machine shops, and propers an article based on this interview which will accurately convey your opinions of German machine shops and of the German machine building industry. Such an article in our columns will have a very wide circulation in Germany and will reach the very menewho have taken offense at the article in the world.

I should be very glad to meet your convenience in re-

Very truly yours. L. C. Alford.





ar. Inomas A. Edison,

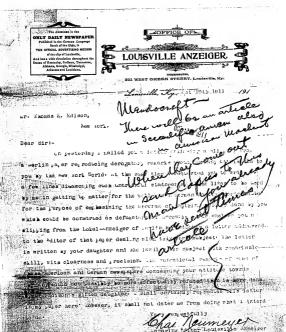
new tork,

Mendoonsky

Dear bir:-

Emplosed herewith I beg to land you a clipping taken from the Lokal-anzeiger, a new\_aper of wide circulation published in the City of serlin, dermany. It reseats the story of your making defamatory remarks conserning termany, remarks with of course you have not made. I have conelided to set this matter at reet so far as the German press is conserned by writing for rublication in the well-known magazine "Gaptenlaube" an article dealing with this subject. The cartenlause , published at Leipzie, circulatee throughout dermany and stands loga in the estimation of the people. For the purpose of doing this effectively likeg to request of you to to address me a few lines denying the slurring remarks attributed to you by un rincipled writers. This letter I desire to make the masis for my article and I want to reproduce it in faccimilo along with it. All of the German , ajers so far received by me are repeating the story and the high regard in which i hold you and of whom all "mericans have reason to be proud promiss me to make an effort to but a stop to these wicked stories. iour kindness will be appreciated.

Ohas / Clumeust— Laraging Editor Louisylle Anzeiger



### [ATTACHMENT/ENCLOSURE]

TRANSLATION FROM CURRANT DEWSPAPER

Mesero Editore:

Ho. F. Meller Laboraly

EDISON'S DAUGHTER OF HIER FATHER.

Supplementing our communications with regard to the statements of Raison Ain the Heavy Tork World, we have received from the daughter of the inventor,

Theever has known my fether, hr. Thomas A Edison, for more than thirty years, as I have, know very well that it is absolutely impossible that he stoud have made the statements, which are nor superating in German neutropers. He has rush too much tact and kindness of heart and with his superior continents and recognized windows sould never show such unthunkfulness towards a land that has homored his so greatly and evinced such he spitality. As I accompanied his on almost the entire integrals—for as Dresden, I had constant opportunity, whose almost it must be integrated by the state of the state of

he rever' expressed to us, his family, consure upon the conditions here, it is entirely by of the question that he has given such an intervient to a stranger, a veporter; an account of which he would know, would appear in every newspaper, how incorrect his aliefed utterance as to German machines is would appear from the following fact. Upon our exparation at Dresdem, he precented now with a new auterabile and further doclared that it should choose from means the proceedings with a new auterabile and further doclared that it should choose from means the posed German machines, along the American melines were not as good As a token of his extraordinary tactfulness I might further montion that,

### [ATTACHMENT/ENCLOSURE]

on our trip, we passed through a country where women, almost exclusively, were performing the heavier field work, by father we greatly excited about it and often gave expression to his discontent and spoke in clear consure of it, to ue, his om people. In the presence of specifier, heavever, he mayor let a word full shout were this point, which I can with exprty confirm, since I almost always noted in the point, which I can with exprty confirm, since I almost always noted in interpretar between him and cuttleion who did not speak English. He was always exceptingly careful in his replice, so that frequently. I had to advice the reporters that he could give no ancour to this and that quotion, as he had not yet sufficiently considered the point in question. In fact he wished absolutely to avoid what night hurt.

Finally, I must comownut case my feelings: I love the repertors, sepacially the Americans, vory much. By their grace, I became at the age of four, a predicy, at elx years I speke four languages, at eighteen, when I became engaged, a picture of a opportune of the period of the perio

EN KNR

October 25th, 1911

Mr. Charles Neumeyer, Managing Editor, Louisville Anzeiger, 321 West Green Street, Louisville, Ky.

Dear Sir:-

Your favor of the 18th inst. was received, together with the clipping from the "Lokal-Anzeiger".

It has been a source of great regret to me published a fow weeks ago. I certainly did not make some of the remarks that were attributed to me, and can only account for their appearance by reason of some shauderstanding on the part of reporters as to what I really did say.

The Cermans as a nation and as an individual have held a high Pales in my estimation for many years, and this Zavarable opinion was greatly strengthened on my recent vist abroad. If you will kindly read the enclosed interview in the New York Times of October Zind, you will learn my Yeal views as to Germany, her people and held out the re-views as to Germany, her people and here out my re-sure this ought to act the meter a cent in the minds of Germans here and everywhere in the world.

Yours very truly.

Yours very to face of new 18 (1)

225 Fifth Av., New York. Oct. 28. 1911.

aus 11/1:

Mr. Thomas A. Edison,

Will be pleased to necess a copy of

West Orence, N. J. the work when printed = if you bounts for this kind afolony drap Dear Mr. Edison.

I am enclosing the article for the "Century so kindly gave me last Wednesday, and which you asked to read over first, before it is printed. I hope it meets with your approval, as I have endeavored to make it ... ..

Perhaps you remember we spoke of detective stories. I am enclosing a copy of one which appeared in the Cosmopolitan for November. I have been running these "Craig Kennedy" stories for over a year now. In this one I have used the oxyscetylene blow-pipe. If it interests you at all I shall be glad to send you a copy of my book of "scientific" detective stories which Dodd, Mead will issue shortly.

Thanking you again for your kindness, I am,

very sincerely yours,

creturo Reeve.



F 41 T1 46 NL " N. "

MY New York Nov 1-11 9 cum o

I am over worked, they bother went

Munseys magazine wents an interview on what is the matter with America ?. Wants matter entirely separate from that used in Times story. Do you care to do this within the next four days. Please wire

Edward Marshall

Maring been

446 West 25 St

### "Good-By, Bill, and Good Luck!"

exciting (ays of the Fresident's toward and demonstrated their listering surelia, indicates and reliable to the baselines and the ba

tion. It required feartees hig ears to be compared to the compared of the comp

The state of the s breakfasts at country. Visits to and breakfasts at country clubs invo been a feature of the Precident's trip. And newspaper men, mnny of them to

Gonises from see 621 plowed through triumphantly under their left in he has the utmost foliths in the me-i errons to Promain Johnson. Power midwey between Section of Target and Targets by Denost from the mantain was designed to the control of the

heard that when they held a train up in the West they always shot the Pullman portor first, so he wouldn't sloep a wink portor first, so he wouldn't sloep a wink at night unless some one was on guard. "Ise scared all right," Freeman often said, "but I know you gen'men goin to look out for me. If dey gots after me too hard, I'm goin' into Pres'don't Taff'e car, and dey can't git me in there, for dat's the United States." Freeman nearly collapsed when they told him one day that Mr. Taft and the

newspaper men were going down into

### The Public Forum

MILKING THE PUBLIC COW. James J. Hill.

EXAMINE political nestrums naw most taiked of as saviors of socioty, humans in intent though many of them be, and it will be found many of thom be, and it will be found that they all involve the continued expenditure of large sums of money to be collected by taxation. The men who pay these taxas are the heiders of property. The men who vote these expenditures of the continue of the

The Chrome A. fellow.

The formation of price posits that the confliction of the conflict

NESSEED.

Provent formers and the control of the property of the control of the c

The West in some laws as they have in paid wisich has helicipined least by fits.

Germany or France to prevent outlet was prevented by the compared to the com

Concurring war travels in Europe Vlast summer, were of tremendous interest and instruction. t that I knew as uch of the places you jted as you that I should not sed knowledg I slurays read a thing when you are mentioned in it. I am interested in everything about you I am totally deaf and

(2./ (3./ you will answert main due time or as soon as Sincerely yours

Public

### THE CHRISTIAN HERALD

DIBLE HOUSE NEW YORK CITY

November 20, 1911.

Mr. Thomas A. Edison, Orango, Now Jorsey.

Dear Mr. Edison:

NOV :21 1911 ans 11/22

Somotime ago I wrote you asking for an interview, which your secretary stated you would be kind onough to grant.

I would much appreciate an appointment sometime noxt woek most convonient to you, whon I could call upon you for a chort talk upon a subject which I am quite sure will be interesting to you. Your secretary wrote that you will be glad to see me at any time, but knowing how busy you are, I would rather come at your convenience. If you are too busy this wook, then the week following will do.

T.W.-G.R.

Say Council wake on appoint with on Islashow of y will be out I and over them come over

Put

## ManufacturersRecord

Bullimore 2/28/11.

Balloon, 9 will give an uleaview orange, N. J. There will proceed the suspect Mr. Thos. A. Edison. My dear Mr. Edison:-

Talking test evening with Mr. Perkins he referred to some very interesting statements you

had made to him lately about the great prosperity in Germany and the progress of the industrial interests of that country as you saw the situation. I said to Mr. Perkins that I thought that it would do our country great good if you would give me for publication in the shape of an interview or special article, an elaboration of these points. I should greatly appreciate being favored in this way. I think such an article as this would command the widest attention and awaken our own people to a realization of the fact of how too much radical legislation has halted our industrial development, while Germany and for that matter other iron-making countries are enjoying great prosperity.

Hoping that this may have your favorable consideration, I am,

Very truly yours,

Advertising is a con-

CARRIAGE WAĞON

W. S. SCHERMBRHORN

#### WOOD & SCHERMERHORN, PUBLISHERS 337 WALNUT STREET

A MONTHLY JOURNAL DEVOTED TO THE INTERESTS OF BUILDERS OF CARRIAGES, WAGONS, TRUCKS, AUTO WAGONS, HIGH WINEEL MOTOR BUGGIES AND THEIR ALLIED ACCESSORIES MACHINERY AND TOOLS.

Mr. Thomas A. Edison, 130 Lakeside Ave. Orange, N. J.

Dear Sir:-

We are in receipt this morning of your article for our Ciristmas number, on "Electric De-livery Wagons". It is a very interesting and pructical article which will be read with interest by the trade.

We highly appreciate your courtesy and we are glad to have you with us. The writer believes that your electric application could be applied to light bungles, to the great profit of the manufacturers and great benefit of users.

I expect to be in Newark next week and would like very much to have a personal interview with you on this subject, as I have given it considerable thought, and have for years been in close touch with the largest manufacturers of buggies in the Country. I will first apply to your Mr. Bell, the Country. I will first apply to your Mr. Bell, and if you will kindly instruct him to grant me an audience I will greatly appreciate it.

Trusting that you have an abundance to be thankful for this week, and that your Christmas stocking will be full to over flowing, I am,

Yours respectfully,

**WOOD & SCHERMERHORN** By W.W. Wood

Dict. W.W.W./M.

AMERICAN VEHICLE

Pithy Pointers on Publicity for ofitable Perusal

[ATTACHMENT/ENCLOSURE]



A new edition a la Collection des Hommes is on the point of being publis Wrairie Lahtte where the most zines are edited. The direction thereof has been entrusted to me . I have decided that rolume shall be devoted to the unii admired Edison. The next rolumes of to first serie will treat of Wagner, Pasteur Dickens, Washington, et thankful if you could let me have any concerning your discoveries an . Photographs also would be of the great for as you know, here in France no it has been jet edited on your works though course numerous articles have run on you. ner help would enable us to expose to the y reofle a new book interesting by the rovell " retails and reproduction of photograph's Waild it be too much to ask an answer the fllowing question

your greatest concern and how do you view humanity's peture? ,, and to be so kind as to give us a special autopach? Ci an first volume must be called Win we should be must obliged if you could let us have as soon as hossible all the documents we hope to obtain Heave believe me one of your most fewent and respectful adminers the weeks let me have need with of the part of 100 Kinder been the French 120 has been you estitled on your upole there regularized catelly have now in it week minds and to explore to her them policia new over interesting by the spects

# Manufacturers Record

Ilichard Se Edmonds. Edder, und General Stunager Ballimore,2/2/11.

Mr. H. F. Miller,

Secretary to Thomas A. Edison,

. Orange, N. J.

Dear Sir:-

Referring to telephone conversation a moment ago,

it will afford me pleasure to call on Mr. Edison at four o'clock Tuesday afternoon, this being the hour I understood you to name.

Very truly yours, .

Richard Hermonds

# ManufacturersRecord

Richard SC Edmonds. Edder und General Honager Ballimere. 7/11.

DEC 8- ="

Mr. Thomas A. Edison,

Orange, N. J.

Dear Sir:-

Referring to my tologram of last might: I cholose a re-written interview based on our trik of Tueckey afternoon. In order to round out the interview I have put into it some things which would seem to follow as a corollary of the things that you said.

I will much appreciate it if you will revise this article, add to or subtract from, as you may desire. There are two or three points, as indicated, which I hope you will feel inclined to claborate.

I shall greatly appreciate it if I can receive
the corrected manuscript by Friday evening or Saturday
morning. I enclose special delivery stemp for return.

Very truly yours,

Dec. 8th. 1911

Mr. Riohard H. Edmonds, Editor, Manufacturers Record, Baltimore, Md.

Dear Sir:-

Your favor of the 8th instant, with rewritten interview, has been received. I am sorry that this ratter was not done in the regular way and more time allowed, for I cannot go over this interview to-day as my time is so fully occupied with many matters, and I shall be busy all aftermoon with 100 visiting members of the American Society of Hochanical Engineers who are coming to the Laboratory

The article which I meiled to you lest night was read by me and a few trifling corrections made. It was all right, but I have not had time to read the one which is now returned to you herewith. The only thing I have done is to answer your questions on pages 4 and 5.

Tours very truly,

TAE/ES

# [ATTACHMENT/ENCLOSURE]

-4-

Mr. Edisona

four plan soaks the protection of the producer.

How would you prevent the producers, in this co-operative
system, from combining to advance prices to such a figure
as to injure the consumer? That have you to suggest as
a protection to the consumer while protecting the producer?

### [ATTACHMENT/ENCLOSURE]

Mr. Scioon.

\*\*Missing of the gas and coke company of London to which you reformed.

Hevas years ago that I knew to the Youngary to seem to England for a Capy of the Court out out of the Court out of the Court out of the Court out of the Court out out of the Court out of the Court out of the Court out out out of the Court out out of the Court ou



The Review of Reviews.

r <u>Edited by W.T. STERD. S</u> Bunk Psuildings. Kingsways

Deck 12th, 1911

TELEGRAME, VATICAN, LONDON.

Thomas A. Edison, Esq., West Orange, New Jersey

Dear Sir.

In the Christmas number of the "Strand Wagazine" your name has been selected as one of the ten greatest men now living I am conducting an inquiry, which was suggested by Mr Andrew Carmegic, as to who are the twenty greatest men who have ever lived. It would be interesting to know who, in the estimation of the greatest men now living, are the greatest men who have ever lived. Might I ask you, if you can spare a moment of time, to be good enough to fill in the enclosed list and return it to me?

I have the honour to be,
Your obedient servant,

Warred

#### [ATTACHMENT/ENCLOSURE]

### My Twenty "Greatest Men."

I was ticked by my friesed Camegie's "List of Twenty Createst May," and it set me thinking on the principles whereon such a reasonable list should be medically such as the su

We must start with Moses, Homer, Aristotle, and Archimedes, i.e., the obvious types of early priestly civilisation, ancient poetry, ancient philosophy, science, logic, and sociology, ancient geometry, and mechanics. The effect of these four founders lives and works still. From the point of view of European civilisation, Moses is the natural representative of theocratic sacieties. Even if Lord Rosebery and Mr. Gosse were to succeed in burning the Pentateuch, copies would still turn up, and no one can deny that the ideas and the races represented in the Old Testament are not quite obsolete. Nor is Homer obsolete-or why all this pother at Oxford about Greek? If Ruskin and some clergymen prefer Plato to Aristotle, men of a scientific and general culture still honour Aristotle as "the master of those who know," as Dante hails him. No trained mind doubts how indispensable to all scientific progress was Greek geometry, or that Archimedes was its most astounding genius.

"The mast creative spirit of the ancient words, the founder of the mighty Empire of Rome, out of which all medieval civilisation rose, was Julius Cassar; and to Charles the Great was the primeval founder of modern Europe. As Jesus Christ is obviously Aura Carterius, F. Paul is the true founder of Christianity as a decrina. And as runly Danes is the founder of Carterius, Phys. Rev. Carmegie ignores the

Gospel, and prefers Burns to Dante and Milton, we cannot understand. The next two names, Gutenberg and Shakespeare, are in his list, and, of eaurse, in everybody else's list.

Here are the assumes (baid the whole), and I challenge any competent historian to have that they must not be counted in the twenty "greatest." You must not be counted in the twenty "greatest." You have a read they are the first ten angues in the Positivita Claimina. Does anyone suppose that I am gaingt to this about great men without reference to our, "Calendar to be in the part of the p

the remaining ten names. Columbus must stand for the beginning of the vast American New World. William the Silent, Richelieu, and Frederic the Great represent the creators of three nations. Cromwell was as great a man, but he was a revolutionist rather than a faunder, and I will nat insert our own hero. Newton will be everywhere accepted as the type of all modem physical science, and Franklin is perhaps the earliest and best known name in the enarmous range of electrical invention. And Stephenson is obviously the natural representative of the locomotive with all its cansequences. With more than one-seventh of our twenty names already devoted to modern mechanical inventions, I am not prepared to follow our multi-millianaire Iron-Lord in adding more inventors. Modern mechanical impravements are made up of a series of gradual development of known forces, and there are now before us same scores of nearly equal merit and of possible utility. For myself I am far from clear that gas, telephanes, motors, rotary engines, wood-pulp, and aeroplanes have added at all to human appiness or ta our moral education. For modern science I select Darwin as having revalutionised modern biology; and for modern philasophy I naturally insist on claiming Auguste Comto-[" King

Charles' Head" be-d-d].

Here is my List of Twenty.

Frederic Harrison.

## [ATTACHMENT/ENCLOSURE]

# . Who are the Twenty Greatest Men?

MY OWN.

MR. FREDERIC HARRISON'S.

MR. CARNEGIE'S LIST.

1.	Shakespeare.	z. Moses, early theocratic civilisation.	
2.	Morton, discoverer of ether.	2. Homer, ancient poetry.	
3.	Jenner, discoverer of vaccination.	3. Aristotle, nucient philosophy.	
4.	Neilson, inventor of hot blast in manufacture of	4. Archimedes, ancient science.	
5.	iron. Lincolu.	5. Julius Casar, the Roman Empire.	
6.	Burns, the Scotch poet.	6. St. Paul, Apostle of Christianity.	
7.	Gutenberg, inventor of printing.	7. Charlemagne, founder of European State System.	
8.	Edison, applier of electricity.	8. Dante, father of modern poetry.	
9.	Siemens, inventor of water meter.	9. Gutenberg, inventor of typography.	
10.	Bessenier, inventor of steel process.	10. Shakespeare, greatest of modern poets.	
11.	Mushet, inventor of steel process.	11. Columbus, discoverer of the American world.	
12.	Columbus.	12. William the Silent, founder of Holland.	
13	. Watt, improvement on steam engine.	13. Richelicu, founder of modern France.	
-	Beli, inventor of telephone.	14. Frederic the Great, founder of Prussian State.	
15	Arkwright, inventor of cotton-spinning machinery.	15. Newton, founder of modern astronomy and	
	Franklin, discoverer of electricity.	physics. 16. Franklin, discoverer of electric forces.	
	. Murdock, first to employ coal as illuminant.	17. Watt, inventor of steam-power machines.	
	. Hargreaves, inventor of spinning jenny.	18. Stephenson, inventor of locomotive.	
	Stephenson, inventor of locomotive.	19. Darwin, founder of new science.	
-	Symington, inventor of rotary engine.	20. Comte, founder of the Positive Philosophy.	
	,		Sienature

NE HUNDRED AND SIXTEENTH YEAR



MERCER P. MOSELEY
President and General Manage

DEC + 3 141

8 Spruce Street, NEW YORK,

December 14th, 1911.

wh

Er. Thomas A. Edison, East Orange, N.Y.

Dear Sir:-

Enclosed editorial is from our issue

of to-day.

Yours very truly,

Publisher.

MĠW\b

### [ATTACHMENT/ENCLOSURE]

SCIENTIFIC AMERICAN MUNN & CO., INC., PUBLISHERS 361 BROADWAY, NEW YORK

December 14, 1911.

Thomas A. Edison, Esq.,

Orange, N. J.

Dear Sir:

In confirming the conversation held over the telephone with your were resentative, we beg to inform you that we have no objection to the reproduction of the literview with you, published in a recent issue of the Scientific American, in the German publication to which you refer, provided credit be given to the Scientific American.

Very truly yours,

HILL & COMPANY 225 FIFTH AVENUE Dec. 16, 1911 his. Thomas a. Edin DEC 18 1911 " scientific The Silant Buller " There seems to be a gr great ideal on the subject , I am bory sincerel o

# Manufacturers Record

Piichard i K. Edmonds. Edder and General Hanager

Ballineras. 20/11.

Mr. Thomas A. Edison,

Orange, N. J.

MA 2.

Dear Sir:-

Enclosed are a few newspaper clippings discussing your recent interview with Mr. Edmonds, which we trust you may find of interest as showing how widely your interview has claimed the attention of newspapers throughout the country.

Very truly yours,

VHP:MMS

Treasurer.

P. S.--We understand that the newspaper correspondent, "Holland," has made your interview a feature for his newspaper letter today.

Weakocoupe Lecch Lotho Edin of the Howton Dont warry, all the conditions you apack and account of housened other in addition can all the Taylor care of when the plan and incentive to reduction of

### [ATTACHMENT/ENCLOSURE]

NEW ENGLAND

(4 FEDERAL ST., BOSTON Phone 6228 Main

CLIPPING FROM

"ARTFORD (CONN.) TIMER

Enturday, Dec. 16, 1911.

thing possible to incline the minds

and American are a comparison to the comparison of the comparison

other concern and handra date and application of the property of the property

carder that yearly on home mich. Would the country, have progressed de 1 has the country, have progressed de 1 has the country, have progressed de 1 has the country have proposed to the country of the

in and sethods.

'The American people are not likely to gray estimated over a schemo which missing sinhanos the prices of what higher both to the attent of a wears to the property of the setting the setting the setting to the setting the setting the setting progress, and compatibles this notion to play a cool offseld to great sintens. His Great Epitade, and Gormany, which will not the setting the se

# Edison General File Series 1911, Autograph and Photograph Requests (E-11-04)

This folder contains requests for Edison's autograph or photograph. Included are letters from William S. Andrews of the General Electric Co., concerning a photograph co-signed by Edison and Charles Steinmetz. There is also mention of Steinmetz's visit to the West Orange laboratory. Other correspondents include Emil Rathenau of Allgemeine Elektricitäts-Gesellschaft, portraitist H.P. Hansen, and politician and diplomat Myron T. Herrick.

Approximately 20 percent of the documents have been selected. The items not selected consist primarily of letters from autograph collectors and from newspapers or periodicals.

m. Avant to Right at Benter Greenbo Un dear Edison: I should like a copy of the photo. from which was made the picture in the Jany Ustianal magizine. I like it the best of any of the wany bleave keen. The only are I have is our for gave me in 83. They Sou has an Eulased one of that picture token at Don't flather supelf In care Jamaqua for wines but if Del have Pincerely

Schemerindy N.Y.

Schemerindy N.Y. Jan. 12, 1911.

Mr. E. F. Miller, Secretary.

The Editor Maderatory

Orange, pl. 1.

Dear in Miller:

I am sending to gyot by this mail inder separate cover a photograph of Mr. School on Abray Strimets, which was given to me by fir, Chas. I. Edgar sof Boston: Dr. Strimets has put in a special of Mr. School on Abray Strimets, which was given to me by fir, Chas. I. Edgar sof Boston: Dr. Strimets has put in a special or this photograph on this photograph on a first block (56) very wook obliged if you would kinday ask Mr. School to do the same some time when he has a moment to appare and than Equity 10 to me by mail.

Yours very truly,

enclose stamps for return postage.

WSA/LB

Friends. ANDREWS- W.S.

Schenectady, N.Y., Jan. 19, 1911.

Mr. Thomas A. Edison,

Orange, N. J.

JAN :20 1911

My dear Mr. Edison,-

I beg to thank you very much for kindly putting your autograph on the photograph I sent you, and which I received back this morning in good condition through the kindness of your Mr. H. F. Miller.

With best wishes,

WSA/LB

Yours very truly, Audrews

fol Dr Steinmely has been telling we about his please Visit to your Laby - and the many enteresting things that he you there - 11.8.a.

Scheneotady, N.Y., Jan. 19, 1911.

Mr. H. F. Miller, Secretary,

The Edison Laboratory,

Orange, N. J.

My dear Mr. Miller .-

I beg to thank you very much for your favor of the 17th inst, and also for the photograph with Mr. Edison's autograph, which came safe to hand this morning. I am very much obliged to you indeed for your kind services in this connection, and remain,

Yours very truly,

WSA/LB

M.S. Sudrews

So~ THL, 2200 J.

# ABE COHEN,

Instice of the Peace, and Auctioneer.
REAL ESTATE AND INSURANCE AGENT
104 WASHINGTON ST.,
Jhomas Edison Ovange N.T  Hori Ser! I have This day Sent  jon by mail a book on Electricity
orange N.T
Hon Ser, I have This day Sent
you by mail a book on Electricty
Printed in 100h
I Came across at at an auction Sale that
had- I would feel highly bonoved of Jon World
Send he your Photo and assure for that I
would Charish it Very much
Kesh
Resh ale Ohen
Ser de Deux Chate &
Uneur for book

To your works a afhoron last in Storage Battery & The Kind interview I had

I am now writing to ask if you will yavor we with a signed photograph of yourself, that I may have a remembrance before une of having wel the grahed intentor of all your faithfully 661 Huron St. Gorfon & Ferry Toronto, Lanade face 74/10.

# ILLUSTRALION DEPARTMENT

OUR PHOTOGRAPHERS ACCOMPLISH EVERY SORT OF QUICK AND DIFFICULT UNDERTAKING AN INDIAN OURBAR, AN ELEPHANT HUNT A KINGS CORONATION A PRESIDENTIAL JOURNEY A RUSSO-JAPANESE WAR A SICILIAN EARTHQUAKE, AFRICAN HUNTING TRIPS

OUR PHOTOGRAPHIC WANTED

ARE USED BY THE CENTURY

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HOUSE BEAUTIFUL METROPOLITAN PRCADWAY PEARONS STRND SYSTEM TECHNICAL WORLD WORD TODAY NATONAL SCIENTIFIC AMERICAN COLLER'S WEEKLY LESLE'S HARER'S

LITERRY DIGEST

WORD'S EVENTS

SATUDAY EVE. POST YOUT'S COMPANION AMERIAN BOY OUTLOK ILLUSTATED OUTDOOR NEV

GRAPH BLACK WHITE ILLUSTATED LONDON NEW

AND O'ER MAGAZINES WEEKL DAILY AND SUNDA APERS, PUBLISIO IN THE

PRINCIA CITIES OF THEORED.

150,000 SUBJECTS NOW READY; MORE CONTINUALLY BEING ADDED. PHOTOGRAPHS OF NATIONAL AND INTER-NATIONAL EVENTS AND PROMINENT PEOPLE; AN END LESS VARIETY OF SPECIAL FEATURES COVERING ALMOST EVERY SUBJECT ON WHICH PEOPLE TALKOR WRITE

5 W 19th St.cor. 5th Ave.

New York Jan. 26, 1911.

Secretary, Mr. Thomas A. Edison, East Orange, N. J.

Dear Sir:-

HDA.K

(encl.)

Our attention has been called tograph which appeared in the face. to a photograph which appeared in the Cleveland Leader, Sunday, Nov. 20th, clipping of which we herewith enclose.

Is it possible for us to se-classification over from you a copy of this photograph we will make a negative of it and resturn it to you in good order.

we have had many requests for quoh a photograph of Er. Edison and pio-tures of his birth place, and if you can help us out we will consider it a great

kindly return the clipping.

Sincerely yours, UNDERWOOD & UNDERWOOD.

a. pica ILLUSTRATION DEPT.

MAIN OFFICES OTTAWA-KANSAS TORDATO-CAHAGA BRANCHES IN MANY COUNTRIES

WORKS & STUDIOS

SENERAL ELECTRIC CO., 30 CHURCH ST., NEW YORK.

February 2

Orange, N

My dear Mr Edison: governor of Ohio and a personal and friend of Mr Coffin for very many year in calling upon Er Coffin today, and happening to see your picture in the office ((we have only three of them now :: !)) asked me if I would not write you, and remind you that he had had the pleasure of meeting you soveral times, is a great admirer of yous, and would be especially gratified if he could, also, have one of your photos, with your autograph upon it -- one of those "serious-minded" effects, you know -- for his new library in his Cleveland homme. Now what ean I tell him? All your pictures are good, but you can probabl; tell the one you'd rather he mond have.

Sminely & Keeler

GENERAL ELECTRIC CO., 30 CHURCH ST., NEW YORK.

March 9th.

H F Willer, Esq., Secretary.

Dear Sir:

Your note of the 28th ult., followed a day or two later by ir Edison's autographed photo, = have been received, and Gov. Herrick is very much pleased to have this and will personally hocknowledge to Mr Edison. He also wishes to thank you for your courtesy in the matter.

Very truly yours,

far

MYRON T HERRICK

March 11, 1911.

Mr. Thomas A. Edison,

West Orange, N. J.,

W 14.811

My dear Mr. Edison:

On my roturn home today from New York I find an excellent and very characteristic photograph of you with your autograph. I eincerely appreciate your kindness in letting no have it.

I have the photographe of many prominent men in my library, but of them all I nm sure that my little grandeon -- who is named after me, will imherit the one of you as that of the man who contributed most to the confort and happinese of his fellow men. I am sure that there is nothing that I can leave him that he will prize more highly than the photograph of you.

I shall never forget the afternoon that I spent with you in your laboratory; and I shall always remember with what intense interest I latened to your account of the invention of the phonograph, and to your talling of the first words that you spoke into the machine, "Mary had a little lamb, atc".

I have put this incident down as one of the things that I shall relate should I ever make a record of my experiences.

I well recollect the luncheon that we had

together at Mr. Coffin's, and your reply to my question of him as to the money making feature of the phonograph -- you said that they thought there was no money in it, and, therefore, let you keep it.

A number of years ago, before I met you, in going over the Wheeling & Leke Eric Railroad, as one of the officers of the read, your little home at Milan, Onlio was pointed out to me. I was very much interested in seeding the place where you spent your early beylood-

I sincerely hope that you have many years of usefulness and-happiness before you.

The Maris

JUN :28 1911 Succese admirer HP Nausew 345= 727 34

ruh vor table Mr. Shows Edin Klear Sei us Filey autographus , sk allo the charge ery respectfulle

In. Fi ML 24 611 Llean Sie olich Seeperses Turkega In returning the partiait, if it is accourance to return same by a mussenger for iting the plea eurence > 3/5-W-27 ll

by to acknowledge weeft of your letter of the 2 job unt and also to beliank you for the safe deliny of the partient while I fine very light I will affected into hindures and honor he has shown my. eplying to the meathor I used to make this I beg to advice that the portrait is made by stippeling with a pew one dot at attime. All of it was made under an enlarging face and the two eyes of peus I used is the crow quill peu and Whe litograph pew. The time it look to make this portrait was about 40 hours The reason that it looks like an etcling That no erasar has been used on it, the original puril shitch is stell under the for the drawing except that it is a stippeled pur and wh drawing on sleep abour parchiment. At to the lasting malities, baring accidents it would be impossible

the life of draw Pul I could Eliplicate by get as good a one but would be imperiable

Yar

# ALLGEMEINE ELEKTRICITÄTS-GESELLSCHAFT

Direktion.

Friedrich Karl-Ufer 2-4.
BERLIN NW., den......17th..Qot.+1911

007 (30)

My dear Wr. Edison: -

I have just received from Mr. Bergmann the very fine portrait of yourself which you have so kindly furnished with your autograph.

This souvenir portrait has given me very great pleasure indeed, and I beg you, my dear Mr. Edison to accept my sincerest thanks for same.

With kindest regards

Believe me,

Yours cordially

Angallung

Mr. T.A. Edison



# THE





TELEPHONE CALUMET 1773

Chicago, III. 10/20/11

Mr. Thos. A. Edison,

Orange, N. J.

Dear Mr. Edison,

As you will note, I am connected with the Detroit Elsotric in Ghicago and have had the pleasure of selling guite a number of Edison batteriss in Detroit Electrice in end out of this oity.

Saveral years ago I had a position as Page in the House of Representatives in Washington at which time I had an opportunity of securing signatures of cuits a large number of very promity of securing signatures of cuits a large number of very promited to the control of the con inent men both in this country and abroad which have been put together into an Autograph Album.

For some time past I thought of writing you to request you to give me your Autograph which I should like to add to my present collection. Undoubtedly you have a great many of these inquiries but I thought perhape you might be willing to favor me under the oiroumstances.

I wish to state that the Edison batteries which I have had the pleasurs of selling here have given excellent satisfaction and the set of 40 cell A6 Edison batteries which I have tion and the set of 40 cell ab Killson batteries which I have been any comparison to the control of the control of the control of the host fig. 10 cellson to the control of the control of the control of the control of 300 sepere hours at any time I wish. I have got-ned shorhood of 300 sepere hours at any time I wish. I have got-ten as high as 308 sepere hours from this battery. To say I am wall plassed is putting it very mildly as I have had a great deal of experience with the lead formation for the peat eight years.

Thanking you in advanos for any favor which you might wish to extend, I beg to remain

Yours most sincerely.

DENDOSE BEED

OM ES MANAGER

CHICAGO

Multing O. Solvan Sp. Sollians. Fith Kindert ugards, Laur suienele, F. S. Swithus I was new carry rot to see you The other day when I called. I han received your 180 metrog"Lt photograph with your sefualters, In which I send your many thanks -I shall Rup it with my most Julied parsessions

### Edison General File Series 1911, Automobile (E-11-05)

This folder contains correspondence and other documents relating to automobiles and the use of storage batteries in electric vehicles. Many of the items for 1911 are unsolicited requests for Edison's advice and assistance. There are also several letters pertaining to automobiles owned by Edison and his family. The correspondents include William C. Anderson of the Anderson Cartiage Co., A. H. Charles Dalley of the Electric Carriage & Battery Co., A. T. Smith of the Packard Motor Car Co., and representatives of the Simplex Automobile Co.

Less than 10 percent of the documents have been selected. The unselected material consists primarily of promotional items and unsolicited correspondence.

# Georgia Railread

YC. Y. Fillman

Mr Thos. A. Edison.

Orange, N.J. Dear Bir:
I have an idea of the property of the control of the con will do me.

Hy idea is to put inside an auto tire or shoe a steel rim stretched agade the inside tight, this rim I believe should be coated with rubber to make it resiliant the tire must first be securely factoned with belte or in some way to the wooden rim of wheel . I am sending a sketch enclosed A is rim of wheel

- B is tire C is steel rim (ink Line) D is coat of rubber (red line)
- E is screw for tightning steel rim against tire

Rim will have to be oval so as to shape tire thus

Trusting that you will give this your personal investigation and hopeing that you will be able to make semething out of it, for if I understand the auto trouble right they are badly in need of a puncture proof tire.

Please let me hear from you as early as possible

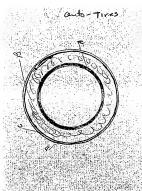
Yours Truly

A. L. Rogers.

a. L. Ragens

Care Agt Ga R R

# [ATTACHMENT/ENCLOSURE]



auto- Lons

# THE ELECTRIC CARRIAGE & BATTERY CO.

RAUCH & LANG ELECTRICS.

SALES. STORAGE.

MINNEAPOLIS, MINN.

Feb. 10, 1911.

(modition)

Yes it is power 6 to carry out your

Orange, N.J.

Dear Mr. Edison,

Would it be possible to make an automobile horn in the nature of a phonograph, that ie, have an indistructable cylinder or disk, upon which say for instance, you could put the word "Packard", so that when the horn was bro't into service it would shout "Packard". This into service it would shout "FACKARY". This same kind of a horn could be placed on Fackars and the placed of the place of

Thie idea came to me while listening to the convergation of several supply men in the Ponchatrain hotel at Detroit, Mich. I believs that such a davice would mest with great favor, providing that the emission of sound would be in proportion to the need of same.

Will you think this matter over and lat me know of euch an arrangement could be made? Hoping you will have time to take this matter up, I remain,

Yours sincers!

THE ELECTRIC CARRA

Vice Pres. & Sac.

auto - horn

# . THE ELECTRIC CARRIAGE & BATTERY CO.

RAUCH & LANG ELECTRICS.

SALES. STORAGE.

M. L. HUGHES, President.
A. H. CHAS, GALLEY, Ver.
M. E. TRUMER, Tass
G. H. STRICHLAND, Sec.
R. L. LUHT, E. E. Chief En

MINNEAPOLIS, MINN. Feb. 20, 1911.

Thomas A. Edison. Orange, N.J. Dear Mr. Edison .-

Your very kind letter of the 17th. is before me, and I notice your remarks in regard to the inventor of the Klaxon horn.

this matter to a foous! A way and I together bring to be of far amy from you as I would like to take this matter up atth you in Orange, feeling as I do that this would be a wonderfully popular invention, and one out of which we could both make money.

Will you kindly advice me what course to pursue in order to protect my suggestion.

Hoping that you will favor me with a reply at your convenie

RAUCH & LANG ELECTRICS

A H CHARLES DALLEY

auto-Tiresam V/5/11 Mashington D.C. Mar. 31 21/911 Lew Oel Station F. My Dear Dir Mr/Illos a Edison I have invented a substitule for knownatic tires for automobiles ouls to find that in a measure my invittion Swas Patented 17 yrs are for use out big cles. IX cames be successfully pplied to bicacles owing to wright bur as There In no more wigar Hay as present used on automobiles it is ideal for this purpose. The patent taken our 17 for ago in very crude. The run is a failure while Anier is successful . My tire is made endless while his is not thereson The im provincuts I have made upon this tiel are more Valuable Than his invition the inventory is latirely original. I did not know that patient I applied. With your wide exporting your advice will help me. Windly adone if I there be furtified in a financial way of going ahead in the manufaction of salt of Whi tire wish ouls a pateler ou the interprovements as above stated. I fear than others would make and. rell it as soon as I established a demand forit. and There read my haroust Found the files our in the field have any great advantage I hanking You Vin advance for the impounation I beg to presain Dincerely

If the improount you have weake is recential to make I a ducces they have A well covered in the claims - the paleul. would be just a valuatos as ofyou gotheclar the ald salaul

Ed Hurd I floored Dur young Chauffer has run The Car into a pale asmushed + badly Mr Hulcherson has a vian who drove his car Several years quouches for him - Says he dan get hum & we can lay him of when we desire



New YORK. NY. U.S.A. Pay 17, 1911

Mr. Thomas A. Edison,

Edison Storage Eattery Co.,

Orange, I. J.

Doar Sir:

I enclose a letter of introduction given to me

by Mr. W. C. Anderson of Detroit. In discussing this letter with our President, Mr.

M. J. Budlong, he spoke of having mot you, and asking also that, if convonient, I may have a few moments of your time by appointment.

The Packard Company are bringing out a now six cylinder model for 1912. An advance catalogue, giving a brief description of this car, is mailed you under separate cover.

Hoping to be favoured with an opportunity of talking a few moments with you regarding this car, I remain,

Yours very truly,

ATS-00

### [ATTACHMENT/ENCLOSURE]

ANDERSON ELECTRIC CAR CO.



derson Gringe &





ALBERT WEATHERBY.

DIRECT FACTORY BRANCH

May 16th, 1911

2236 BROADWAY NewYork City

Mr. Thos. A. Edison, Edison Storage Battery Co., Orange, New Jersey.

My dear Mr. Edison :-

This will introduce to you Mr.A.T.Smith, Sales Manager of the Packard Motor Car Company of New York City.

I have requested that he personally call upon you in the interest of the Packard "SIX" car, and hope you will be able to make a satisfactory purchase of a Packard car.

Packard, and you to be the owner of a Packard would be a good advertisement for them, and I know indirectly helpful to our proposition.

I am leaving for home this evening, and will write you in a day or two about the other matter.

WCA:EA

Yours very truly.

Mandreson



PACKARD MOTOR CAR COMPANY, DETROIT, MICHIGAN



New York, NY, U.S.A. June 5, 1911

Thomas A. Edison, Esq.,

Lewellyn Park, H. J.

Dear Sir:

(Attention of Mr. Miller)

Referring to our telephone conversation of yesterday, also to letters of introduction wh I mailed to you under date of May 17th, a copy one of which is attached hereto, will you kindly arrango an appointment for me with Mr. Edison at his convenience if he is at all interested in the new six cylinder Packard car?

Advance announcements are mailed to you wake under separate seal.

Yours very truly,

Sales Managor.

ATS-00



Thomas A. Edison, Esq.,

Orange, n

Orange, N. J.

....

(Attention of Mr. H. F. Miller)

Beg to thank you very much for your kind letter of June 7th, replying to mine of the 3rd.

When the six cylinder Rackard arrives, it will be a pleasure for us to offer it to Mr. Edison for an afternoon. We will notify you when we roccive it and shall be pleased to have him try it out as a matter of mechanical interest and not as a masse demonstration with a view for sale.

Yours very truly,

PACKARD MOTOR CAR CO. of H. Y.

Sales Manager.

ATS-00

T HUMBING DEA. IN SBOTSFLID TREAS. CA BBOTSFLISCY. B.E. FRANQUIST, SUPY. J. G. DALE, SALE MANAGES



TOMOBILE.

Mr. Thos.A. Edison,

Orange, N.J.

Doar Sir;-

TAE-outo

The writer had the pleasure of reactivities cut from the sen a few days age and he suggested that the continue of the sequipment. We ordinarily use a managent first from my he thought a steel one would give botter service. In addition we would advert that it is impossible to give your car an end cleared of it without blocking up the springs. The straight and of open that you spoke to your son we are compelled to have the above of the whole of the krupp works and they result in giving a continue of 14", which is entirely too high for this section of the correct as it absolutely prohibits the running of the car at speed and also raised the conter of gravity too high. The present clearence which is laby at the fly wheel, we have always found entirely ample for tobing in any section east of the Missischppi River.

Yours very truly,

SIMPLEX AUTOMOBILE CO.

BY June H. Sowen

G. E. FRANQUIST, SUPT C.T. NEUBOURG, PALO TAK -auto

TELEPHONES: 2142 LENOX. AUTOMOBILE,

SALESROOM: 1862 BROADWAY

June 29, 1911

Mr. T.A. Edison, Orange, N.J.

than that or 112".

Dear Mr. Edison;-Kindly pardon the writer's not having answered

your letter of June 23rd before this time, but the dolay was caused by the lottor going to the factory.

The road clearence at the lowest point on the 50 HP Simplox is 10" and the clearance of the fly wheel is 12" greater

Yours very truly,

STHPLEX AUTOLOGUES CO.

Day 10 males, to rather low for places where I want to Car most your agent where I that there would be no trouble to give me II make below.

G F FRANCUIST SHOT



4. 8. 616 EAST 8359 ST TELEPHONES: 2142 LENOX.

SPOOM: IB62 BROADWAY

o/c Thos. A. Edison, Orange, H.J.

Doar Sir:-

July 10, 1911 all right I can change the here, as in all my cars I make

new axles of norway iron - The

The writer has your letter of July 5th in reference to the Eddson! I remember distinctly setting that we will green with its research of the Simplex car. In my conversation with its research of the setting that we built some care with special clearance for use in Goldfield and Somepah and teld him but we obtained this clearance by Hattening we the Car Bon construction blocking my the set op 14 reconstruction to the set of the setting of of our front exac makes it necessary to lineven it outlong in we intend changing the clearence and when that is done we obtain an additional 4° or hull read clearence of 14°. This gives the figure wheel an actual clearence of 16° but it is absolutely impossible for us to raise the clearence to 11° without blocking up the springs. In that event we would put 1° blocks under notth ach of the springs.

We regret very much that Mr. Edison did not understand the writer thoroughly and assure you that we are anxious to do whatever we can to please him. It is the opinion of our engineers that he will never be bethered by axle or motor clearance in any place in the East.

This is rather a difficult thing to explain in a lotter and if you do not thoroughly understand it the writer will be pleased to call on you at your convenience, or better yet, Some time during a visit to New York if you will call us up we will send the domenstrating car and take you to our factory whore you can theroughly understand what we mean by blocking up the springs, and straightening the axle.

Yours vory truly, SIMPLEX AUTOMOBILE CO

. .. ......

BROESEL, JR. TREAS. C. A. BROESEL, SE

U. E. PRANQUISI, 50PI.

J. G. DALE, SALES MANAGER.

# SIMPLEX AUTOMOBILE CO.



614 & 616 EAST 8319 ST.

TELEPHONES: 2142 LENOX.

TELEPHONE: 5188 COLUMBUS. SALSROOM: 1868 BROADWA

Mr. Thomas A. Edison, Orange, N.J. **3** ..., ....

Doar Sir:-

001 16 91

We enclose herewith receift for \$4700., in payment of balance on your Simplex car.

We trust that everything is satisfactory to you, and assure you of our appreciation of your order as well as our best cervices in the future.

Very truly yours,

SIMPLEX AUTOMOBILE CO.

FHB/HG.

(Enclosure)

July Down

MURPHY ELECTRICITY RECTIFIER COMPANY 187 NORTH WATER STREET au "/27/" ROCHESTER, N.Y. Nov. 21-'11. Mr. Thomse A. Edison, Orange, N. J.

Through the courteey of Mr. Beach I had. during the early summer, the pleasure of a visit with X you, and an opportunity to discuse the Murphy Reconstitier.

You will remember that, at the time it was ar-

wemonetration and teet.

Subsequent to my visit important improvements the wore made in the apparatus and we decided to post-your the demonstration until we could che made in the apparatus and we decided to post-your the demonstration until we could che made in the country of the state of t

fier has been made, for the reason that we first desire to avail ourselves of your kind invitation to demonstrate it in your laboratory.

We wish now to inquire if your invitation maintaine, and if it is agreeable and convenient for you saine, and it is agreemate and convenient for you to investigate the mertie of the apparatus at this time. If so we would like to make the demonstration at ae early a date as poseible, in which event, in Murphy, the inventor, and myself will come to Grange with the restifier.

Thanking you for your early consideration of this matter. I am

Very respectfully yours.

CRB/W

6. R. Barnel

ADDRESS ALL COMMUNICATIONS DIRECT TO THE COMPANY.

C.T. NEUBOURG, PAES

H. BROESELJR TREAS C. A. BROESEL, Serv. G. E. FRANQUIST, SUPT.

I G DALE SALES MANAGE



SALESBOOM 1862 BROADWAY

TELEPHONE: 5188 COLUMBUS.

6/4 & 6/6 EAST 8359 STREET.

Yew York, Dec. 29th, 1911.

Mr. Thomas A. Edison, Orange, M. J.

Donr Sir:

We have your latter of Dec. 27th, and beg to say that we have replaced the Simms magneto, which you representative brought to the Salasroom, with a new Bogol magneto, which we hope will prove satisfactory.

We beg to take exception to your men's report in reference to our having supplied you with a second-hand magneto and we beg to assure you that this is not our practice.

We further beg to state that your car is surely a 1912 model but, this has nothing to do with the dual ignition system.

This, we wish to explain, has been attached as a stock equipment on all chasses which come out of the factory after December 1st, 1911.

If the new magneto, which we have furnished you, does not work satisfectorily, we would suggest that you let us have the car for a half day, as we are sure that there is some adjustment which can be quickly made to remady this trouble.

Yours truly, SIMPLEX AUTOMOBILE CO.,

H. B. Jr . -- B. H.

HBroesel.

Mille A Date inthe implese Conespondence oflege Mre

Mr Educon e refairs on my Red Studebaker Machine for the year amounted to \$217.08 accor Shop Order. In view of the fact that both George of g to the bank parsons. The Can State up to the House the Can I change it up to General more and the second to the bank Lausdens Silver

## Edison General File Series 1911. Aviation (E-11-06)

This folder contains unsolicited correspondence from aviators, inventors, and enthusiasts requesting Edison's advice and assistance. The letters were mostly inspired by newspaper and periodical articles concerning Edison; few of them received any reply. The one selected item, which contains Edison's response in the form of marginalia, relates to the use of storage batteries in airplanes.

The unselected material includes blueprints, newspaper clippings, and an issue of Flight, a weekly publication of the Royal Aero Club of the United Kingdom. The subjects pertain to airplanes, helicopters, dirigibles, and flying machines generally.

10/201, will

### Edison General File Series 1911, Banking (E-11-07)

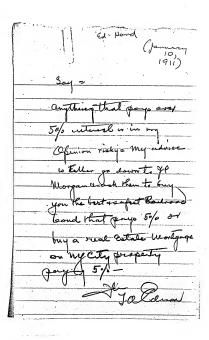
This folder contains correspondence soliding Edison's opinions, along the fave letters hoping to shape his opinions, regarding banking and currency issues. Included are letters concerning trade, finance, gold supplies, corporate organization, antitrust policy, currency reform, and economic prosperity. Some items discuss the central bank debate. Most of the letters were written in reaction to newspaper and magazine articles, including Edison's Saturday Evening Post interview with Roger W. Babson entitled "Our Foolish Panics."

Less than 10 percent of the documents have been selected. The selected items contain Edison's reply in the form of marginalia.

Mision Hell N. 9 ne pertend dale nuthall blinds of letters but ter to your only for an hours apunn of good bleer regarding an hours med pers for an famotion as I take you your companies as I am a proeticion of 24 years standed I and not being milleworth this liberty to ask go re and it will pay me Jos to isire speculation but only Such as will pay me income whole is Jofe and parmanent as I Dison you wo

writing I would be fleared to call upon your Decilary in derive for to go so I am an upon my honor only desire information - In musel as done stated I mil deer a great- Lavor of no yearon it can not be done hope you will excuse me for Sending this leller to you as it was written in all Sincerity TELEPHONE 483 UNION

# [ATTACHMENT/ENCLOSURE]



9016

PERSONAL.

Thomas A. Kdison, Req.,

Orange, H. J.

Yy dear Sir:
Yy dear Sir:-

It is a rare treat to read whole trace the the those contained in the last issue of the Artiflum YPEUIND POST as coming from you. On that was issue of the Artiflum YPEUIND POST as coming from you. On the was added to the trace and inclinate the property of the property

Views on this subject which its dislessie's Gillespie's frank my own these which is which its dislessie incorporated in his recent speech made in Congress. The chief characteristic of the European central banks is their freedom from legal fetters. If we want for Congress to act they will give us a plan which, as you may, will be defective, and such an institution would be continually going to Congress for the removal of this and that remulally going tempths bank in politics for a bundle of this and that remained the bank in politics for bundle of the work of the members of the National Mometary Commission and the House committee on banking and currency.

Its my purpose to organize a company to promote such a head to our credit system and wish to associate you in the movement. The funds necessary to carry it out are of small moment compared with the personel of the organizers, for it can be made self-sustaining from the start. We should proceed as follows:

lst. Select a few organizers whose names would inspire the confidence of our business men in every section.

2nd. Draft a charter which we shall ask Congress to give us.

3rd. Choose the names we propose to submit to the President for his appointment to the first executive offices.

4th. Select two of the best business men in each State to become director and alternate director of their respective States for the first  $\delta_1$ , 7, 8, 9 and 10 years;

5th. Insert a clause in the charter of the promoting company prohibiting its stockholders, officers, directors and agents from owning any of the stock of the central bank stock during the existence of the promoting company.

T. A. F. 2.

options to purchase the central bank stock at par for cash. As to the details of my modus operand I would state that we could use the proceeds to be derived therefrom in a manner and for a cause which would do not built of the manything we could think of. I will go into the detail of that if you are interested in the subject, on any thing we could think of. I will go into the detail of that if you are interested in the subject, on

My address is 515 Bond Building, Washington, D. C.

Sincerely yours,

P. C. milliam

golb

Dear Mr. Edison:

use is dangerous, and believe cally avoided.

made as a result of a discussion in a little neighborhood club at meetings held the summer of 1894, which may interest you because of the similarity of ideas, and because these meetings were held some seventeen years ago.

Yours very truly,

Art Calendars

Calendar Pads
Blotten
Frans
Frans
Transparent Window Signs



# Souvenir Post Cards

Local View Post Cards made from your own Photographs Holly Greeting Cards

# GEORGE P. HOUSTON Fine Art Publisher

11/23

514 Main Street Cincinnati, Ohio, No.

Mr. Thomas A. Edison,
Orange, New Jersey. Market Dear Mr. Edison:

I have read with interest your seent anserview in the New York Times.

will you please give me names that addresses the number of German Banks who investigate and finance inventions that all the other information regarding this subject you and on the how to obtain same.

Picase tell me where I can get the traffest Sydan Asphaltum. I noticed it mentioned in "Thomas Total", Market and Inventions."

Thanking you for these courtesies,

13 Mashington and With Cromelin was much impressed by your reforted purpose to study out an act to South Mysok 17 Dec be substituted for the disonedited Skaman law. Such a later, if it realized your intent - would can the quitatate of all thinking more in Ou the 12 inst. H the country. your work will artial references to a variety of sources, reported your condamnates and at the risk of being thought Shorman ontitrust & obtrusive, I boy to submit to your of which the business work ansideration the Cooperative Societies of England - & the law ander which aware final as the budinor Six they flowersh. The beginning world became award of of this Enormous system was the involved in the Storman Silver prochen hurchase of \$3 - worth of groceries act, which it's sponsor weld defend by a few poor weavers in Rochdale only on the plea that he was between the dovil of the deep seaf and I

the street of the Wholesale Co.

the extent of whose operations
may in fine for exceed that
of any humans organization
now in existence. It is a
good × boneficul institution
never x appared as such; it
has the support of the common
people whom it benefit, and in
act to its injury is over lifely
to be attangled by parlament.

I have been a confination since
I was 21. & have now missed a

The retail establishments own

of la sporative combination, or bear an active park in some when my search lessure known fromthet. It is almost so you since I was awater (browning of a small coiprative corecompartical the late of figures track was precident, I has pastern of the Michael or cabody, was one of the Michael your and to holp in a conferative undertaking of large scape for pay command ine aford expectfully your aford expectfully your aford expectfully your

Chance to urge the advantages

#### Edison General File Series 1911. Battery, Storage - General (E-11-08)

This folder contains correspondence and other documents relating to the commercial and technical development of Edison's alkaline storage battery. Included are numerous items in Edison's hand, including a list entitled "Uses for Edison Battery"; its typed draft, prepared by Miller Reese Hutchison, bears marginalia by Edison. Also included are notes, draft correspondence, and interoffice communications relating to experiments, cell tests, the procurement of equipment and supplies, advertising, and sales and administrative practices. Other items pertain to commercial development in foreign markets, including a report concerning Russia by foreign representative Maurice E. Fox. Some of the letters discuss the use of batteries in delivery wagons, electric bicycles, and telephones. There is also correspondence with the Hooker Electrochemical Co., the National Hydro-Carbon Co., and the Niagara Alkali Co. relating to Edison's investigation of a lower-cost substitute for German potash. In addition, there are numerous unsolicited requests for information about the battery, some with marginal notes by Edison. A sample of these letters has been selected. Among the correspondents are Edison associates William G. Bee, Frank L. Dyer, Ignacy Goldstein, and Walter E. Holland. Other correspondents include electrical engineers Henry M. Byllesby of Chicago and W. Hibbert of the London Polytechnic; Arthur I. Clymer, an investor in the Edison Storage Battery Co.; and Theodore N. Vail, president of the American Bell Telephone Co.

Approximately 80 percent of the documents have been selected. The not selected consist of unsolicited correspondence, a translated copy "Alkaline Iron Nickel Accumulator," and an address delivered by J. A. Montpellier at the International Congress of Electrical Applications in Turin, Italy.

Statem:

State is writer:

Set of any source white it can bet some advise white it can be the source of the source

aus 1/10/11

Louisville, Kentucky, Jan 7th 751

Thomas A.Edison, Esq.

Orange, N.J.

Dear Sir: -

I have in hand the developing of about 40,000 home power by water contemplating the use of low head turbings. Therefore will be probably three months of each year in which this amount is not available and must be supplied by an auxiliary power grant.

With a view of storing electrical power during the period when an excess of the required amount is available, will it be possible to do so by employing your new nickel storage battly, in lieu of the general practice of a separate steam plant?

I fully appreciate the novelty of such a scheme on as large a scale as outlined and the magnitude of the undertaking. Moreover, I think you will agree with me, that the auxiliary steam plant is a wrong idea and bad practice, if by using a storage reservoir, during periods of excess, it can be eliminated.

With my limited knowledge of your new battery, it has occured to me that this may be done by multiplying the cells; though I have no way of knowing except by your advice.

Awaiting the courtesay of a reply for which I thank you in advance, I remain,

Yours Respectfully,

Resident Bridge Engineer.

Dict

J.B.W./0

The a Edison, Eqq | Hapoleon Onic Jam'y Sin, 1911 |
The a Edison, Eqq | Hapoleon Onic Jam'y Sin, 1911 |
The a Edison, Eqq | Hapoleon Onic Jam'y Sin, 1911 |
The an only am old time folsering out an idea of the control of the control

Tel, Operator D T & I My Care Wellington Hotel, Napoleon, Chio-

Jan.14, 1911.

Mr. Goldstein:

I send you herwith two hard rubber composition gland ones, one red and one black. At your earliest convenience will you please, determine whether account of the control of

W.E. HOLLAND E. H.

Mydro-Electric Power Co. INCORPORATED 1907

Theresa, N. W.

Thomas A. Edison Esq. Orangs, N.J.

Dear Sirt-

We have confronting us a pro which perhaps you can aid us in solving. For superoid of about three months in the dryset pa operate our plant. Thought it possible that some port and of an electrical storage could be used forof an electrical storage could be used for reserve ourrent to to produce sulplus energy to be stored and used during the few hours of the day when the water supply was inadequate for our requirements.

Will you kindly adviss us if such an appliance can be gotten and from whom it be procured, if such thereis. Thanking you for the favor we are

very truly yours,

Hydro-Electric Power Co., Geo'y.

Eckles, JAMES to go with their vehicles & by a Dissert on your chance in our city doughtment here. It has been ent bere. It has been position that I have held as Secretary of the Water Doard, for the past clever years, and being just at time of the year when this town like all the other towns situated along the Lake y. Pines. are extendy dull, I made the remark to my Wife this morning that I would again write your and ask your as I did about three years ago relative to an agency of your Storage Battery, and which at that time your said was not ready, now last Edison you know just how a man feels when he is out of complyment after having been at the grand ever since he was fourteen years old, so if you can

see your way clear to give me a trial. cither as agent for your storage Battay, or in the Cement Burianur, in one of our western towns, as neither my thing or threshow. Why I wish your give me a trial and I will try and make good, in what ever venture your my propose, awaiting I hope a favorable suply from your, I seemain James Celles.

# Wydra-Electric Power Co.

Theresa, N. V.

Feb. 15th, 1811.

Thomas A. Edison, Esq. Orange, N.J.

Dear Sir:-

Yours of the 7th instant at hand. We would want storage for from 100 to 150 horse power. What would be the total cost installed of the outfor

required for 100 H.P. and how much for 150 H.P.? Awaiting your reply we are

Very truly yours.

Hydro-Electric Power Co.

Dec B. Solve

If you want to store 100 HP for 10 hours daily this would 62: 1000 Horse power hours, twould Cost pro 6 a being 35 000 to 400000 which I apprehen is energy out of the question

relay the Bell for Julieron Callery

S. Buttery

March 7th, 1911.

# EDISON BATTERY - STANDARD PRACTICE DATA. ON BATTERY OF 40 "A6" CELLS OR 60 "A4" CELLS.

Use: In most pleasure vehicles and in trucks up to 1 ton capacity.

Capacity: 100 to 200 miles per charge in pleasure cars, depending on the road conditions, speed, etc., or 40 to 50 miles in truck service.

Normal Full Charge: 21 kilowatt-hours theoretically, --- but sotually it is 20%, or more, above this, depending on the efficiency or inefficiency of the charging apparatus.

#### EDISON BATTERY OF 60 "A6" CELLS.

Use: In trucks of 1 to 2 tons capacity.

Ospacity: 1-ton,50 to 60 miles. 1-1/2-ton,40 to 50 miles. 2-ton,35 to 40 miles.

Normal Full Charge: 31.5 kilowatt-hours plus percentage lost in the charging apparatus.

#### EDISON BATTERY OF 60 "A8" CELLS.

Use: In 2 to 3-1/2 ton trucks.

Capacity: 2-ton,50 to 60 miles. 3-ton,40 to 50 miles. 3-1/2-ton,35 to 40 miles.

Normal Full Charge: 42 kilowatt-hours plus percentage lost in the charging apparatus.

#### COST OF CHARGING CURRENT.

Varies from 3 cents to 10 cents per kilowatt-hour, depending upon the locality, quantity used, time of day used, etc.

mp. Dyer:

3 othis specific enough? I count
give the sates for different localities.

3 send you are letter copy for marling
W. E. Malle.

Battery - equip

File Storage Bulls

) 150

Mar. 29, 1911.

Mr. Edison:-

Thomas and also the sample of the first batch of Fake put through with your new process. It looks ear favorable, although our Flake is not quite as flat as that which you separated at the Laboratory.

Fig. are going right shead and trying out all kinds of stunts in order to getthe best possible results, Mr. Thomas seems to think that 10 hours is too long and he is taking a sample every 20 minutes after 8 hours,

RAB/JJB.

I am now Guyung Sodium hydroxide give me some figures, I coo

# Your Own Caustic and Chlorine

with the most improved, by far the most efficient and easily the simplest

# **ELECTRON**

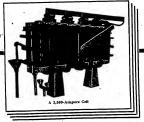




## [ATTACHMENT/ENCLOSURE]

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			and the manuscriptons of the town

METALLURGICAL AND CHEMICAL ENGINEERING.



Electrolytic Production of

# CHLORINE

By

# The Townsend Cell

Licensee Granted in all Countries)

Low initial Cost

Low Cost of Maintenance

Bleach Generating Plants for Paper Mills Chlorination of Ores Alkali Plants for Soap and Textile Mills

Caustic Soda

Bleaching Powder

SULPHUR CHLORIDE

Hooker Electrochemical Company

#### NIAGARA ALKALI CO.

Cable Address "Nierali

Caustic Potash, Solid and Liquid, blorine and By-Products, Muriatic Acid

Office and Factory Niegere Falls, N. Y.

Aux 4/20/11

Mr. Thos. A. Edison, Orange, N. J.

NIAGARA FALLS, N. Y. 4/12/11. alis Patarle 4 300 Mos of Cheory

Door Sir: -

poer Bir:

Sectoral Wo note your Seysemed there of April 100 in recent to our section of the control of the con

The terms upon which we would dispose of the right to use our cell would of course depond upon the number of colls to be used and the purpose for which came would be used.

The writer will be very glad to take the matter up with you in person at any time you may decide that the above statements cause you to be sufficiently interested to make further investigation.

In the meantime, we are expecting to make considerable caustic mode during the coming year as well as caustic potent, intending to alterate the market diotates, and the Electro Blooching Case Co. of 24 East Blat St., How York City, are utilizing on chloring one for compressing same into liquid, which they sell in steel cylinders containing about 1005 of 1005 chlorine each.

We are also manufacturing bleaching powder containing from 37 to 39% available chlarine and in case you are interested in any of these products we shall be very glad to receive your specifications from time to time, and any inquiries will receive our prompt and careful atten-

Very truly youre, NIACARA ALKALI CO

HDR:MAB

Uper requer rel We want to be come by the wind the of the come of the Edion Florage Bacon Co., 19 Orange, Oc. J. Dear sir; I am at the present time running a series of tests on the Edison Storage Bactery for my graduation thesis at the armour Institute of Fechnology. I have been unable, however, to obtain the equations of the chemical reactions which take place during charge and discharge, It would add very much to the value of my Theris, which will he kept in the Library, if I could get these equations.

of you should deem it solvewich to send me the equations of will be my pleased to machine there in my report.

I hundring you in solvenes for whether information you may guid me on the machine, our your Chay truly.

J. A Sheline
3032 O's. Ouch Sue,
That 50. Bhings.

BS - TAE H. D. RUHM, Pres, and Goo, Mgr.

E. M. SERGEANT, Vice-Pres, and Asst. Gen. Mar.

F. O. GEYLER, Sec. and Treas.

## NIAGARA ALKALI CO.

Telephone Bell/135

(INCORPORATED)

Electrolytic Caustle Potash, Solid and Liquid,
Chlorine and By Products,
Muriatle Acid

Office and Factors Ningara Edile, N.

Mr. Thomas A. Edison, Orango, M. J.

Doar Sir:-

or of April 20th, at hand and

NIAGARA FALLS, N. Y.

Your estoomed fever of April Coh. at hend and contents noted. We beg so thank you for the information therein contents noted. We beg so thank you for the information therein contents the content of the

HDR:MAB.

Very truly yours, HIAGARA AIRALI CO.

E

To ha Centraline & Chemins #27 1 11 the hours heller hand to be Been he celd house Cars but Our capacity has incream Y relies to seed lacun trom 1600 Cells weekle Callenn as neclas from form to 2200 in april - Im 3 weeks were bad - They remed Lead Callers as Exacly weller 2700 - we are 4 times the carlo otile balling on ilens running Lapenses Jalou about 13500 slours 1 of we are sure we are Greating Even att Beach has I cars I am now making made 2 at Sales Cherry WC to merease copain to 1000 Cells Larle 1 Large Car Johnsh has Goten Wunning on Beach has only one. a franch of the Enz Coor running on 28th at They foxed vep some road, superseeding a doco

are extremely gread -

HOOKER ELECTROCHEMICAL COMPANY

that while I can use PATENT DEPARTMENT

Thomas A. Edison, Eag Orange, N.

Doar Sir:

Referring to your inglifylof the 10th inst we have been advised by Mr. J. C. Jossup of our New York office that your requirements are 1000 lbs of

1012 Oil to sime your requirements are 1000 as or Ohiorino woodly and one to mo of Camptic Soft in Street, to Micra-Con 2500 Ampars Tremsend Coll operat-ing 24 hours duly at 4.4 voits any 90% Ampary Strict. Cisney average

Requires 14-3/4 EMP. D. C.

Produces daily 162.5 lbs Chlorine

" Caustic Soda

Requires

275 1bs Salt (NaCL) in tho form of brino.

The Cathode Liquor contains approximately 150 grams of NaOH and " of NaCL par liter

HOTE:

On svaporating this Caustic Soda Solution to a point where it contains 50% of NaOH the salt is all recovered but about 2% and returned to the process. 

HOOKER ELECTROCHEMICAL CO NIAGARA FALLS, NEW YORK



Thomas A. Edison, Esq.

Orango, N. J.

Thomas Edison, Esq.

-4-

To produce one ton -- 2000 lbs of Caustic Soda daily requires eleven -- 2000 Ampere Cells which also produce 1768 lbs of Chlorino in the same time so in this case it would be essential to have use or disposal for the quantities of product stated.

Regarding your conditions it would be impractical to operate unless you need the total of both Coll products.

Should you have use for an installation of about the size montioned and if you will kind-ly advise us of the quantities required we would be glad to have you advise us further.

Trusting this information may be of interest, we are,

Very truly yours,

HOOMER ELECTROCHEMICAL CO.

CNL/AC

1. camin

Monte of Itanium alloy Wfg 1225-26 Oliver Ba I am making caster Mickel daily, to get Soft I use Mang Oxide Etc

Ballon - TAE

Vol. 87 No. 17.

# HE IRON AGE

New York, Thursday, April 27, 1991.

Test bars of ordinary cast iron. Note the blow holes, the dirt, the coarse grain of the metal. Compare with the other bars illastrated.

Test bars of same metal purified with 1-4 of 1% of Titanium Alloy. Ultimate strength 19.4% greater than that of the untreated test bars.

from hard spots, shrinkage cracks, blow-holes, etc. Tensile and breaking strength is considerably increased, while the increase in compressive strength and resistance to wear is really startling.

ium Alloy is the cheapest high grade on the market. It increases cost of ed product 25c and upwards per ton. In steel, Titanium Alloy produces effects even more remarkable than in east iron. Titanium steel rails are used by largest rail-

# The Wonder-Working Alloy

Every maker and user of cast iron can profit by studying the above illustrations made from actual photographs unretouched. They prove conclusively that Titanium Alloy is a real wonder-worker.

Alloy is a real wonder-worker. Tinanium Alloy is a combination of the metal Titanium with the best quality iron electric-ally relined. It is added to the charge in cu-pola or air furnace. It makes iron of excep-tional quality by removing solid and gascous impurities in a fusible slag. The resulting metal settles more quietly in the mold, makes castings pattern-true and remarkably free Every Maker and User of Iron and Steel Should Have Booklet No. 20

TITANIUM ALLOY MANUFACTURING COMPANY CHAS, V. SLOCUM

1225-26 Oliver Bidg., Pittsburgh,

Absolution Index to Advertisors, page 174

B5-6em

Telephone Ball 139

H. D. RUHM, Pres, and Gen. Mar-

E. M. SERGEANT, Vice-Pres. and Aust. Gen. Mgr.

F. O. CEYLER, Sec. and Treat.

# NIAGARA ALKALI CO.

Electrolytic Caustic Potash, Solid and Liquid Chlorine and By-Products Muristic Acid Office and Factory Niagare Falls, N. Y.

Cable Address "Nisgalk"

NIAGARA FALLS, N. Y.

May 3rd. 1911.

from general to it is princtically

Mr. Thos. A. Edison, Orange, N. J.

Bear Sir:-

A. Edison, free from Chlorides was would be quarte from thewe you quate on anythe Your esteemed they of April 25th, at him and contents

Your esteemed the void for April 29th, at them and contents noted. Beg to thank you for your further information. We are quite sure that so small a plant as you montion would not pay unless your conditions were extremely undersorted to the content of the probability of the probability of the probability of the content of t

We are at present manufacturing about as good electrolytic caustic potesh and caustic soda as is produced in the world and could name you vory close prices on both of these materials.

We are putting up liquid chlorine in connectionwith ELectro Elesching Gas Co., 24 East 21st. St., New York City. and can ship this material 100% ohlorine in steel cylindors.

We are asking the Electro Bleaching Gas Co. to take this matter up with you and see if they cannot make you a low enough price on the liquid chlorine to justify your using same instead of producing your own.

We should be very glad indeed of course to furnish our cell for your plant, but do not think you will eventually decide to install plant after:you get into the matter.

Our technical department will make up an estimate on such a plant as far as can be made from the information available and some will be submitted for your consideration.

> Very truly yours, HIAGASA ABKALI CO.

HDR: MAB.

### H.M.Byllesby & Company

ENGINEERS
206 South La Salle Street
CHICAGO

CHICAG

May 9, 1911.

Thomas A. Edison, Esq., of Pa werry clean Treny good, & and
Thewellyn Park,
Orange, N. J. auch a facility.

Why dear Nr. Raison:

I am sending you under separate cover copy of an address which I delivered, principally extemporancously, at the University of Pennsylvania on April 7th, and which might interest you.

I shall feel very much honored if you can find the time to read it and would be glad to know, if you do read it, how it strikes you.

Very truly yours,

H.M.B.

9

#### [ATTACHMENT/ENCLOSURE]

Ed- Hand want to any to succept developments him strings 6 cetter such that an new in the Electric Comme waterling those coho mostgale Gorandele y believe I know as well

F. O. GEYLER, Sec. and Tress.

#### NIAGARA ALKALI CO.

Telephone Bell 135 Cable Address "Niagalk"

and By-Products Muriatic Acid

Niagara Falls, N. Y.

NIAGARA FALLS, N. Y. Hay 13th. 1911.

Our file #1848.

Mr. Thos. A. Edison, Orango, N. J.

MAY 16

Doar Sir :-

DOOR OF DIAM

Further referring to the question of using an electrolytic cell of our type, we beg to advise you of the following estimate on plant for manufacturing 1000# of caustic sode or proportionate amount of caustic potash por day:-

Buildings	
Cell room equipmen	t (7
linos, copper bars	, ot

7 cells including pipe tc.) Electrical machinery Evaporator equipment, tanks, boiler, etc. Total

\$5,000. 5,000. 2,000. 4,000 810.

750.

250.

960.

2,450.

6,000

2,000.

2,450.

# YEARLY EXPENSES IN HAMUFACTURING CAUSTIC SODA. Salt consumption 580,000# \$ \$2.80 per ton Coal 500,000# \$ 5.00 " 8 7.00"

2 35.00 " H.P. Power 70 H.P. Labor Supplies Interest 6% on 316,000.

Amortization Royalty \$1.00 per day and cell Total

PRODUCTION.

370,000# of caustic soda (76%) & \$2.10 per 1b. Cost of manufacturing 315,000# chlorine 1 lb.of chlorine = 2-1/24.

The above estimate is based on caustic as liquor of 48° Bo. If the caustic liquor should be evaporated down to solid, the additional cost per year would be about \$500.00.

For manufacturing caustic potash in the same size plant the estimate showed the following:-

Niagara Alkali Co. To Hr. Thos. A. Edison. Page 2 Date 5/13/11.

Consumption of muriato of potash 740,000% \$2.40

Goal consumption 820,000% 2 \$3.00 per 100% 1,250.

Fower, labor, supplies, interest, amortization, royalty 15.149.

royalty Total 15,149.50 7541 234,179.50

Production of 560,000# caustic potash \$ 35.00 per 100# 28,000.00 cost for manufacturing 315,000# of chlorine 1 1b. = 2#.

from which you will notice that allowing JS.00 per ton for coal and 355.00 for power, and figuring caustic sode at 11, 25.00 for power, and figuring caustic sode at 11, 25.00 for you make the property of th

Very truly yours, HRGARA ALKALI CO.

HDR:MAB.

Mil Plecholy Cahen yo Copy a

35

BS. TAE (?)

NATIONAL HYDRO-CARBON COMPANY

CAPITAL \$3,500,000 OWNERS AND PRODUCERS HIGH-GRADE HYDRO-CARBONS MANUFACTURERS OF AE-ONITE COMPOUNDS

> EASTERN OFFICES HENRY W. OLIVER BUILDING

Myton, Utah.

May 19, 1911,

GEO. H. MULVEY FIELD MANAGER MYTON, UTAH.

湖 200 公司 Mr. Thomas A. Edison.

Orange, N. J.

Dear Sir:-

Your favor of the 2nd inst. at hand, and in reply will state that we are in a position to supply what you ask for, Elaterite, Tabbyite or Weidgerite.

I would ask you to take the matter up with our Eastern Office, 2216 H. W. Oliver Bldg, Pittsburgh, Pa., where you will probably be able to come to some definate arrangements.

Very truly yours, Geod mulvey

GHM/D

What is the price per ton of Elaterite Fob Myork or Sultdake = I am Experiency with it to fund " apecial uses = The sample aut is not elaterite but has the greyena Characteristies I understan Case of Elatante & have from New Felan

Caponificable:

Japonificable:

The contract of the problem of the contract of

4...

Storage Buttery testing

May 31st, 1913

Mr. T. A. Edison:-

The box for cooling the A-6 cell is being made at the storage battery works by Fred Fine the carpenter. He promises to have this box down by 2 or 3 o'clock today, Wednesday.

Kindly note that I have allowed for 1/80 oursants between the oaks and the said of the box. There are boursen, the said of the box to denit of four of these cells being but into above of this size that will take the 160 fam that you are using to cool off the locomotive batteries in the laboratory.

I mention this in mamorendum in the event of your wishing to try this cooling box while I am absent in Washington tomorrow. I will, Give instructions for the hox to be delivered to Reroll Smath in the Laboratory as soon as it has been finabled.

Jones is making the necessary reversals in the test strin cells to determine as to whether or not the coating we have nut on the test strips will break down on reversal. Then the boy who de taking the readings is potting curves of these polarization readings which you can see at any time in the testing room where these strips are being tried out.

ווים מ/ נוסו

Mr. Thomas A. Edison, of the Electrical Science Sat. Transcript. Can'n on tell me run a car truck or autom be recharged in 3 minutes cost of a small recharging for A battery like this would be to me to mulmy elective vacuum machines (1/6 T.P. alternating Imotors) as good men - snable to get . I he

sorthward in any deligent better for surfection of the same of the surfection of the



# THE LILY MILL GRAIN AND MILLED PRODUCTS

Dimenbury X Town

East St.Louis, Ill.June 9th 1911

Mr. Thos. A. Edison.

New York, N.Y.

Done Sir:

under sucork I have noticed fith pleasure from recont press reports

that you have succeeded in producing the light storage quick charging battery that you promised the electrical world some time ago and I sincerely hope it will prove the success that we have all hoped for in recent years.

I am anxious to know if this battery will prove satisfuotory for motorcycles for if a suitable battery can be produced I would like to engage in the manufacturing of electric motorcycles which would meet an unlimited demand.

I would like you to write me fully concerning this matter- stating what would be the probable cost of the most practical size batteries for these ovoles and greatly oblige,

YOURS truly, Hacklyce

# ondon Soap Co

Mr. Thos. A. Edison, Orange, N. J.

Dear Sir. -

Enclosed you will find a newspaper outting attention to the progress you have made with your new par say that I would like to be counted as one of the many who no doubt will want to handle your battery for motor pruposes. No place in the world is better situated for securing cheap electric power which you may know when I tell you that London is the home of Adam Beck, the man who fought single handed for cheap power from Miagara Falls, and London got it for we are now getting slectric light supplied us at 42g psr Killowatt hour and the cost for power is less.

When you get ready to put this great, and sconomy on the market I wish you would remember me and put me on the list as one who wants to introduce and sell your new batteries.

I have sold out my soap business and am just waiting to get a chance to take up and handle your new line for this district where as I said no body can be better situated than the people in London are to make use of your latest invention.

John mechan

Edison's New Batter;

At the meeting of the Nilsons Steeries Light association in week, it has they do low York, Mr. Edison inside when we had not to the Work, Mr. Edison in the Western Steeries and the Western Steeries and St too good to he true, but Mr. Edison does not usually tolk measures, and if any mon could savent a hattery of this kind it is probable that he could. The advantages of such a hot-tery or so a numerous and so obvious that we can early hop-that Mr. Edison's claims will be faily substantiated in the near fature.

mut. Ed - Hand The Polytechnic Electrical Engineering Department, 307, 309 & 311 Regent Street, London, W. 6. Best play 7 . 1911 J. a. Evison Esq usa that I hope to seak Dear M: Pdion, undondon un Chefalla about your accumulator. They may that my afunce. an expectation of commenced Swellopen anxious to get into touch with it. May I he so bold as the and if there is any prospect of its being put on the market. I have no definite information of the present position. Evense me for troubling you, Jours Breedy W. Hibbert.

Store : - Battery -

#### MEMORANDUM FOR MR. EDISON

July 24th, 1911.

## Regarding the type B cell funnel filler:

Luhr has several dies in an unfinished etage. Have been est aside for inspection. These are for the funnel parts only.

hr. Bliss and Mr. Salzman both say the work was held up at the time on account of the B-4 cap size being then in an unsettled state.

It seems the tube length is not exactly 0. K. as made up, but could not learn anything definite from anyone on this, and am making a test to find out.

Mr. Bliss and Mr. Salzman said that they had experienced difficulty in forming the entire piece at once with the stock steal on hand. I am going to order some attach that is suitable and try it out.

They have doped out a method of spinning the tube and forming the funnel over it, but no sketches or other data on this is to be had. No tools made. I am its filmed to believe this will be more expensive than completing the entire operation without the use of spinning.

No tools or information on the manufacture of the tubes. No tools, models or data on the float or wire to be had from anyons.

Have started after this entire outfit and hope to round it up in the next few days.

(9/1/11) Battery, Horage

Follow up the little filler with bob index for filling B 4 type Cells. Holland has it in charge.

Bachmann:

When you design orane don't fail use the Condensite drums - It might be good idea to replace gradually all your flake drums with the latest and best condensite Ends.

When Aylesworth returns bettor see him personally and arrange for film Crock paddles coated Condensite also screens can be coated with Condensite varnish and hardened.

EDISON.

August 1, 1911.

(9//11) Battery, Storage

Greenly:-

When you get thru at Battery work return to Lab. and take up the working up of making our finely divided Iron. Electrolytically the same as you made before you went over.

you to work it out commercially together with all the details. As you get amples take then up to Smith and have then put on tost. Mix 6% of Mercury Oxide with each sample and instruct boy to make 5 gram pockets, my up 2 cells for each good sample - with each pocket of cell use 2 nickel tunes. Each group or sample is worked to cell use 2 nickel tunes. Each group or sample is worket, they give 1200 at 12 times and if with cell the time of the cell that the cell

gives 1700 after the 50th run to 1 Tolt and as good as regular on high or 750 millsmape disolaters as a considerable will be 0. K. Then you can proceed to determine contains and best methods to commortally install the process in the factory.

EDISON.

August 1, 1911.

## MEMORANDUM FOR DR. GOLDSTEIN

August 12th, 1911.

Before Mr. Edison went away, he asked me to nurchase another one of these alkali battery powable lamps, suchise he had me purchase for him about six months age, to see if the manufacturer is using nickle in his battery. The former battery did not have any nickle, but used silver.

Mr. Edison understands that the manufacturer is now using nickle in the battery, and asked me to purchase another one and give it to you, so that you could take the battery apart and see if nickle is being used.

Here is the battery. Will you please investigate it, and if you find nickle, let me know.

You can get at the battery by unscrewing the top, disconnecting the wires and pulling the battery out of the compartment.

M. R. HUTCHISON.

Directions for the use of the HUBBELL IMPORTS SAFETY LANGUES.

Hanufactured by the Portable Flootrie Safety Light Co., Howark, N. J. U. S. A.

Read those directions through carefully before attempting to use the lenterns.

With this btorago bettery it is of the utmost importance to keep the bettery plates from contact with injurious substances.
Only solution prepared as indicated below

only solution property and indicated below bould be used to the property of th

The heart of mandate for the constraint of the constraint of the constraint of the storing the constraint of the storing the constraint of the constraint of

CHARGING

Lastome while being charged with current must be incutated free each other, honce if supponded by their handles, the bur on which they are hung must be a non-conductor, such ign wood. The lastomes should be greated on the bar so that they are not likely to touch each other oven if not wantles.

If a wooden sholf is used for charging it should be coated with aspiral varnish, and always out dry.

Bofore charging see that the lanterns are filled with solution to about 1/2" of the top of the cells.

Charging rate is one amore for eight hours, or eight amore hours at a rate not higher than one amore.

Facing the lanterns, the righthand charging hele or terminal under the reflector shell, is always positive.

Place the positive wire of the charging line ; into the righthand hele under the reflector shell, and the negative charging wire into the plofthand hele.

The positive wire of the charging line may be determined in the manner shown on the attachement.

CATCH OF TAMPFERES

When lentorns are in constant use, epen every seventh day and replendish solution that has ovaporated, and once a month empty the battery and therety rinse out with distilled water and then refill cells with unused solution.

PREPARATION OF SOLUTION Solution and commound should be kept from skin and clothing.

The solution consists of 20% by weight of mubbell alkalino battery compound (a solid) and 80% by weight of distilled water (conden-

The specific gravity of the solution is 1, 200, or 25 degrees secumeer 25 degrees secume.

Distilled water (condensed steem) is absolutely essential. It can readily be obtained at drug store if there are no other means at hand, Water good for drinking is not necessarily closularly pure. So is concess by walche (1 lb. or 1 plans) care caused by walche the condense water than the condense water that the cond dening accomp and rour control by weight of hibbell Albelino battery compound, using a clean percelain, enamelied wass, iron or comper dank (not gellywhized iron, time wood). Stir with a clean glass or iron rod (not wood) while iron tricks of compound are dissolved. Then cover the vessel tightly and allow the solution to cool.

Store solution in a clean glass bottle with a rubber stopper, a class stopper is limbe to stick. Always keep tightly corked, Compound also must be kept tightly corked, Compound Always shade solution before filling the battery.

If distilled water br obtained by condending steam from a boiler plant, it should not be necessary a contor plants, it bround not per taken from the ongline exhaust, as this will contain off. Notther should water be taken from the belier gauge cooks? Take grown only from the direct line from the belier and condense it.

#

THE
POSITIVE WIFE
OF THE CHARGING
OR
SERVICE LINES

Not a small corner of our yellow pole finding paper horowith, placing it on mod or come other non-conductor. Place the two ends of the service lines about 1/4 apart on the wet paper. The paper will be come red around the negative wire. A knot should be placed in the positive wire for future guidshoo.

The service lines should be tested from time to time as the generator's polarity may change, and this will make the other wire positive.

VENTS

Keep the small vent heles in the cover domes open at all times, but in doing so be careful not to injure the thin diaphragms on the cover gasket undermeath.

GASKETS

The mide of the soft rubbor cover gaskets with the thin disphragus should always be placed updrangets. These disphragus are phoreed with very time heles, which per it the gases to accept, but prevent the colution from locking out, should the lambers be overturned.

Battery St.

MEXORANDUM OF AN INTERVIEW WITH MR. WIEVER OF THE R. & I. CO. SEPTEMBER 28, 1911.

Mr. Wiever came in with Mr. Bee. After more or less

irrelevant talk, during which he professed great friendship for the Edison battery and showed me the attached price-list, I said that I could not explain the fact that we sold ten times as many batteries to Anderson as to all the other pleasure vehicle manufacturers combined upon any other hypothesis than that the position of the other manufacturers or their agents must be antagonistic. Mr. Wiever said that this was not so, but that the trouble was that there was nothing to be said in favor of the Edison battery that would warrant its high cost. I told him that it was olear from this statement that he had not read our oatalogues or any other literature and knew nothing about the battery. I said that it seemed impossible to get the other manufacturers directly interested unless they had something at stake -- had their own money invested in the batteries -- and I asked him if he would be willing to agree with us to equip, say 25% of his vehicles with Edison batteries. He replied that he could not agree to do it but that it was up to us to create a demand for the batteries and his agents would be only too glad to sell them. I asked what he meant by this, and he said that we ought to establish garages in the big cities so as to take care of our batteries and give them the attention they require, and that we ought to make a canvage of vehicle owners to get them interested in the battery and that we ought to send out men to help their agents sell

the battery. He said the Exide people were practically doing this; that their guarantee on Ironolad batteries was very popular and that it had in a large measure destroyed any solling talk in favor of our battery. He wanted us to co-oporate with him and pay part of an exhibit to be given in New York in January, our expense to be \$35.00 per day for two weeks. Both Edison and Exide batteries would be shown. This proposition was turned down because of the uncertainty of the present situation.

During the discussion he attacked anderson; said he had failed two times and that his settlements with creditors were small, and doubted if he was making any money at the present time. He said that he knew that Anderson was losing on his garages. He hinted at the possibility of a combination among the electric vehicle memuracturers, and through out the hint that Anderson might not be so friendly as we think.

They have used an Edison battery at their own plant in Cleveland for over a year, and it was not satisfactory, being much more difficult to take care of them a lead battery. They sent an Edison battery to their agent in Detroit with special instructions to use it in the demonstrating car, but it was sent back because it was too difficult to maintain and too expensive to operate.

The whole effect of the interview was that the R. & L. people have not the slightest idea as to the merits of the battery and have not the least spark of friendship for us.

10/6/71 analysis for the Holland Two Dinature test Collo with 1.5 g. of Conduct in each foliting ugalar 21/ 10 H+ 1128 hoH fulitie. of Conducity in whiting after a tolal of 56 cm (5. H. ). 2 there

Stor But - TE - hand How about the russey alope, ahead

1= Street Care 26 Wireles 2 docoustives main railways, shape munes, 27 - Colline Lab 3 Lighting Randway train 28 Frucks Switchman Courte 29 Yaxical -5- Switch signal Lights pleasure vehicles 6. Can impedions lights Lighting Welshack Given I working marquelof Radway signal apparal 31 32 for might Lighty clocks Eto & Lighting paparking automic Starting automobiles 33 acruaticons 34 Player Pranos - Tor Tuphones in houses 35- 121 axous 36 Lighting aeropla 12 Telephone atalian batter 13 for Door Gell & other as Jelegraph Office were Lighting Omnibe 14 Miners Lam a digiting Isolated house 41 Burglan alan orany lighting Southand house 42 Thermoregulator 43 Ventitalles forms Windmills 21 dighting Weelt drung yacht.

burning horst 61 auxilhary to 62 Elreal Spen 63 SCREET Sweeper 64 Working Vuenum cleane been will spection

Low about pro water A 10 9 A12, cer ...1

# INQUIRIES WEEK ENDING OCTOBER 14th, 1911

Indian Orohard & Ludlow Co-Operative Assn 35 Worthington St Springfield Mass 10-18-11 Unknown Sent data and letter Kurs Machine Company Quincy III Oor 11th & Maine Sts Unknown 10-13-11 Want's agency

Pennsylvania Equipment Co West End Ridg Philadelphia Fa Pow Wag " Sent letter & data

Chas W Stucker of Opere & Webber Co 800 Washington Ave No MinneapolisUnknown " " " " "

J Goldsmith & Some Memphis Term D G Room 10-14-11 " " "

October 18, 1911.

Mr. Edison,-

I have had prepared and have turned over to Mr. Bee, ten copies of the list of Adaptations of Edison Battery.

One copy you have in your deak, and I have retained a copy for my files.

If you want and more copies, Mr. Bee will, of course, send such as you desire over to you.

M. R. HUTCHISON.

Oct. 20, 1911.

Electra Cycle Company,

Circumstantial Company,

85 Malin Care, Wishort, Mich.

Gentlemen,-

Mr. Raison was very much interested in the illustration and description of the electris motorcycle you manufacture, in the Automobile Journal, which I showed him this morning. He asked me a lot of questions about the motorcycle which I could not answer, and finally, asked me to write you and request that you ship one of these motorcycles over to us, on consignment for a few days. He wishes to look the cycle over, and see if, by applying some ideas he has thought of in the way of a special battery for this kind of wholes, he cannot increase your miseage and speed.

He is greatly interested in all new adaptations of Edison Storage Battery, and his co-operation will do you no harm.

If you are willing to send one of these machines over, I suggest that you send it without the battery, as we will install the battery after it reaches here. Simply put the box on the machine so that we can alip the battery into it. I will personally take the machine in charge when it arrives, and will bring it to his attention at once.

He feels that such a machine should meet with a large sale, and is sufficiently interested to want to go over the machine in detail.

Yours very truly.

## THE AUTOMOBILE JOURNAL.

diceifically stated, except on the written approval of the president and two other members of the beard of di-rectors, or of a mojority thereof. He shall forward



eyele, Made In Chie

The New Hersterh Messeryste, Nieds is Chicago, quarterly to the president and the scentury o certified tensined report of all receipts shad disheraments, and secondar shall be not suffered to the state of the scenture shall be noticed preceding to anomal messers to suffer a speciality in committee of three appointed by the preticant from the general memberships. He shall give band in such sums on may be determined by the best best by the national experiments of the best best by the state of the polated for that purposa." "Also te amend orticle V by adding section 6, to

read as follows: "The national treesurer shall pay, from the naare national treasury and property and pay, from the na-tional treasury, the expenses of each district upon the receipt of vouchers approved by the district vice president and treasurer. Provided,

bowover that all district expenditures be authorized by district vice president, and that he incur no greater exponse than \$50 without first obexposse than \$50 without first ob-taining the permission of the na-tional president; provided, miso, that the national president authorize no greeter district expense than \$100. except upon o majority voto of the boord of directors."

The Electra Motorcycle. Herowith is presented a reproduc-tion of the Bleetra mount, the new electric motorcycle, made by the electric motorcyclo, made by the Efectro Oycle Compony, Chicago, Ili. The chief feature of the new ma-chine is the motive power. The bat-tery, le an Edison, although other makes ore fitted upon order; giving 12 voite for, which the motor is especinily wound.

in The battery is corried in the frome between the wheels ond the footboard, a con fortable support 25 inches long, affording change of po-eition for rider, is attached to the bottom of the battery

box boyend which it mojests few lucies an interest than one for court white. The right side carrier the feet lower, which were the man of the control white the court with the court with

0

Storage Battery - Sales

## MEMORANDUM FOR MR. EDISON.

October 24, 1911.

Mr. Monnot wishes the following photographs, negatives of which we already have, for framing and hanging up in his London and Paris Offices.

Pour or ,

Bearing to

Rumper,
Rothbition Cell A-4,
Shipping Room Ploof;
Rothbition Sell-Room,
Romanian and testing Room,
Romaing and testing Room,
Romaing and testing Room,
Romaing and testing Room,
Romaing Room with men,
Iron Loading Room without men,
Iron Boading Room without men,
Into Boading With Iron Boading outfite,
Introp with top out,
Iron Boading House Men Boading Ba-d coll.

In addition, cell group, showing all forms of cells, up-to-date. This negative has not yet been made.

I do not want to send these photographs out without your permatesion, but as practically all more than the send of them.

Kindly advise me as to whether you want them to go out or not, and oblige,

ww

Battery THE havel writing Madocoay the storage bothries there would be a prose. fromible at all this could probably best in the English extre It would be of great intenst to her

would need e will be glas to furnish the May truly gown

by the Government to out un clorage ballens for covelest, Isuggest you come avei to Saloralory, & looks over our works, perhapse we can make Some concurrement Wal would be untually beneficial

BATTERY, STORAGE -

Memo for Mr. Edison. . 10-30-II.

Mr. Edison:

I have been endeavoring, for three daye, to compile an advertisement suitable for this educational campaign we are considering. The more I try, the more am I convinced that such a campaign will prove exceedingly expensive and, perhape, unwise.

The electrical pleasure vehicle end of the battery businesse is very small when compared with other lines that remain untouwhed. You are dealing with accesse of people in the pleasure vehicle end who, as a rule, know but little of batteries or things scientific, and who are easily influenced by local garages, in epite of all the advertisements they may read.

If you state that the ordinary garage man, or some of them, do not recommend Edison Battery because of dearth of repair work when once installed, he is going to get back at you, even to the extent, perhape, of adding a little aluminum or chlorine to such cells as he has access to. As a rule, the garage proprietors are crooks, and do not hesitate to resort to underhand methods if aroused. The lead battery people could and would quickly convey to him in an indirect manner/ what to put in the cells.

On the other hand, when you are dealing with repponeible commercial concerns, such as Department Stores, Telephone Companies, etc., these matters are under control, because one man is responsible for the battery equipment and would not dare to abuse them.

A casual gaance at the list I prepared, reveals several unworked fields, wherein the lead battery cannot compete at all. Do you not think the same amount of money you contemplate spending in this advertising campaign can be used to better advantage, perhaps, than as contemplated? You have spent a large amount of money on thie battery already, and ought to commence to get some of it back now. You are naturally a fighter, if drawn into a scrap, and will be inclined to go the limit if the lead people retort, as they certainly will. They will not remain pageive.

Anderson ie doing good work. Suppose we wait and eee how he makes out before joining in, meanwhile concentrating on other lines? We can get Anderson to work in the various arguments in favor of the Edison Battery, including the photo of theoverloaded car, as hie staff will run out of ideas soon and will be coming to us for some new ones. Meanwhile we can go ahead on other lines.

That Butcher Wagon ie going to be worth a dozen pleasure vehicle linee. Interurban care, electric terminal locomotives, house lighting etc. all offer large markets WHERE THE LEAD BATTERY CANNOT COMPETE. By epending enough money to employ really proficient and experienced mento work up some of these fields, results of a lasting nature with freedom from the annoyance to which you will be subjected in this contemplated campaign, will obtain.

The Klaxon Co. has epent over \$75,000 in the last eix months educating the public to the perfectly obvious fact that a hareh cound is the real warning signal. Nothing more. The education of the public by paid advertisements is extremely expensive. They entered the campaign thinking \$25,000 would be sufficient. Your campaign is much more difficult and will certainly cost over \$100,000.00 before you see daylight. Is the game woith the cample when your own peace of mind is added to actual cash expenditure?

You have been fighting all your life. It is time you commence to enjoy peace after all your labors. That "30 watt hours per pound" battery will do more actual good when perfected than volumes of advertising matter. You are this only man who can bring this about, and your work will be seriously hampered by the underhanded retorts you will get from the lead people, because it will upset your peace of mind.

You have nothing to fear as to this Factory keeping busy as soon as this submarins cell is on the market. I will guarantee to keep a factory of twice the size working day and night by the snd of two or three years. But I have got to have a lighter battery for equal power, or a more powenful one for equal weight when the submarines graduate from the 500 and 1000 ton class to the 5,000 and 10,000 ton final development. The present standard hydrate in small tubes will do for the next three years, but I do so want to see a higher capacity from the same volume and weight.

If I were not exceedingly fond of you and desply concerned in your welfare, and if I did not know you would accept this letter in the spirit in which it is written, I would not presume to write it. For thepast ten, years I have been activally associated with large financial interests as business engineer. My activities were not confined to engineering matters solely. Business policy has entered largely. Some of my suggestions have been adopted and have proven successful. I have expressed adverse advice in two large wars that were waged between interests, and have seen my judgment vindicated by losses running into the hundreds of thousands which would have been avoided by diplomatic handling of the issue. But I do not presume to pit my experience against your mature judgment. Your word and wishes are Law to me, and I stand ready to follow your decision in all things. Wintever ability I may have is at your disposal for 20 hours a day and 556 days in the year.

Oct. 30, 1911.

Bicycling World Co., 154 Nassau Street, New York City.

Gentlemen,-

Please furnish me with the correct address of the Flectra Cycle Company, of Chicago, III.

I have addressed a letter to them at Chicago, Ill., but it has been returned to me.

Thanking you in advance, I

....

Sours very truly,

Army and Navy Representative

MRH/ABM







New York October 31,1911.

Edison Storage Battery Co., Orange, M. J.

#### Attention M. R. Hutchinson

Gentlemen:-

We have your favor of the 30th instant and in reply thereto would say that the address of the Electra Cycle Company is 85 Horton Avenue, Detroit, Mich.

Trusting this is the information you

desire, we are,

Yours very truly,

Itse flicytling World & Motorcyck: Review.

Eultorial Department

AVAILABLE PRACTICAL ADAPTATIONS OF THE EDISON STORAGE BATTERY. (Compiled by M. R. Hutchison.)
Edwar Laboratory, 7mr. 7.141) Electric terminal locomotives ( the wind of the control of the con FOR THE PROPULSION OF-(Not a feeted by con-oussion of rough handling as in coupling the train #. Mining locomotive up, etc. (Displacing the dangerous Wlant locomotives E. Industria steam, compressed air, and super-heated steam locomotives devector. caveling derricks. K. Industrial plant indoor trucks. (A number of hand truck manufacturers are going into manufacturers this field covers handling beggese, freight on plars, michins parts in factories, stocky, etc. Ecrosuckly, fuckly) (Much more dependable than the gasolens engine. Always ready. Might be able Fire Engines and fire trucks. to interest the American La France Fire Engine Co. in Hewark). (Horses disfigure lawns 16 7 Lawn Mowers .- LAAGE by their hoof-prints. Gaso-line engine lawn mowers are 1 Small line engine lawn movers are not perfected yet. There is no reason why the electric lawn mower will not surpass all other forms of power for this purpose. Simple to operate, (Road rollers must have K. Rosa rollers. weight. The steam engine is obnoxious in cities, and will onnoxious in cities, and will not be tolerated very much longer. Might try to inter-est some of the road rollsr manufacturers in the electric rolling propelled welles propelled h Money Juell to the same then of bettery that we use in electric treates it to construct out to the same in the sam Jan Morris - Smill. Swall comm as in Shore current over

Sweet min -

long feeder wires, and making the system operated through elect and storms, which now incepsoitate them.

(Much more reliable than 20. Railway inspection cars. a gasolene propelled inspection car, as it is not so liable to break down on a main line with consequent danger from trains colliding with it). (The wear and tear on clutch and gear shifting M. Street aweepers and sprinklers. mechanism is so great, that street sweepers and sprinklers have not yet come into general use. The electric street sweeper or sprink-ler is far superior.) (Far superior to the 3 m. Elsotric omnibuses. gasolene, because of absence of wear and tear on clutch, gasclens engine and gear machanism. ₩. Electric trucks. 3. Electric pleasure cars. (There is already one motor cycle manufacturing De. Blectric motor cycles. motor cycle manuscuting concern that is turning out electric motor cycles. They now use Edison Bet tory as well as lead. Any of the bicycle magazines con-tain the advertisement.) The ourrent taken out of Taxicabs. the battery in a ten mile run can be put in again in ten minutes. A five mile ven minutes. A rive mile run in five minutes, etc., up to about 20 miles, when it will take longer, as the bettery cannot then be

M. Electric farming machinery.

charged at such a high rate, unless it is very well vent-ilated and occled.) (A gasolens engine, or any the combustion engine in a wheat field is a dangerous proposition. After the wheat is dry and ready for stacking and gathering, a fire will do a good deal

(This metter is in Mr. Hutchison a hands.

of damage. )

. Electric launches.

(Excellent for inland lakes, but for heavy sea work, such as on the Atlantic Ocest, the gasolene engine is superior, because of its lighter weight, thereby greater sea-worthiness of the can't).

4 1 Nort trip ferry boats.

(Many street railway lines, etc. operate short forries. An example is at Rochester, Mr. , where small forry lines, and the street should be should

Al, Bleetrie terpedoes.

(In Mr. Hatchinon's hands.

Industrial Flaur Tractors: Dris rut always possibly to services of a security services of a broatering to services care in large genterins, augicin when conhumin, the part when we have considered yours on a track necessary shutter work, numerosary shutter work, a how ground recture during a fire or automoral of the care accomplished.

tack in half the trues and

1. Klaxon Warning Signals.

There are over 60,000 Klaxons and Klaxonets in use today in the U. S. THEM one and when the is operated by a battery of some kind. The majority of the WSE batteries. The most univer-sally used Klaxon5 types L+S and take our standard B-2 or B-4 ignitstundard one or see 1 galve ion sets. They are would to run from 6 volts, and take about 7 amperes. Their use is of very short duration each time was they are blown each time when they are blown, and therefore, it can be briefly stated that a Type L or Type S Kiskon can be operated for one year from a B-d ignition set, without re-charging or without the station of any sater. This has been done for the past men ocen cone for the past two years on the car of Mr. Hutchison, the inventor of the Klaxon. (See curve No. 48, copy of which can be hereight secured from Mr. H. H. ed, cony of which can be not seemed force by the II.

Seith of the Loberatory)
The Maxonst can be run for a year on a B-2 ignition as the industrial or the addition of any mater. Of course, it is built additionable to add distilled water shout seven these water about every three months; the best of then ones year. All bonifide dealers, and jobers in the U.S. handle Klaxons and should be approached on sale of Edison But tery for this purpose. The same battery can be used for ignition and for operating ignition and for operating the lights, but of course, if an increased load is put on it, it must be charged oftener.)

2. Automobile ignition systems.

twhere the battery is used simply to start the engine up, and for that purpose slone it will eperate for at least two years without re-charging, but water should be added about every three months. I select to the B-t. The B-2 should do this work for a year, with-out re-charging, where the B-4 is used for ignition all the time, it should be ohar sediabout prosessed

eny theor mouths

3. Gas engine ignition systems.

(There a large number of gas engines in industrial plants, most of them being ignited by battery.
They run usually about 10 hours a day, and under such circumstances, the hattery should be charged about once every month, if the B-2 is used, and about once every two months if the B-4 is used.)

1. The Sabout

four mon!

Motor cycle ignition systems. (The small cylindrical type Edison Estrery, taking up less room and not weighing as much as the standard dry cell, can be used for ignition on motor oyolos. At present, dry oells are used universally on motoroyoles for ignition, except on the more advanced types that have magnetes. The game battery will operate the lighting system of the motoroycle which is, at present, def-icient, relying solely upon acetylene, or kero-sene lamps. All the motorcycle manufacturers should be canvassed in this matter and dealers and jobbers seen.)

5. Automobile and gas engine electric self-starting. annaratus

(Within the next year or two, no cased gasolene Sugar Quin forms of self-starters are while including motors, which act as generators to re-charge the battery after the car is started, and simple motors alone, open starting of a gas engine requires very heavy ourrent. A lead battery will deteriorate under such treatment, because it amounts and practically to short-circuit. The Edison Buttery is the only one adapted to this work. All the automobile manufacturers should be seen, os-pecially the Cadillac Co., pecially the deadles of, who are now turning out such a device, E. V. Hart-ford of the Hartford Shook Ab-sorber (O., has also gotton out an electric selfstarter, and, as he has one of the Raison Battery out

residence for lighting, he is very partial to the Edison Battory. He should be seen at once. His address is Jersey City, N. J.)

6. Electric cranes and hoists.

(The manufacturors of these should ne interviewed, as they now operate by trolley. Owing to the floxthill yet of control of an electric motor, it is best adapted to crane work. The manufacturors of all cranes should be interviewed in this patter.)

7. Electric lifting magnets for orange.

(Precidently all the iron ratios and other magnetic mutual control of the control

8. Electric Hoists for mines.

(Saoh mine should be equipped with a reserve battery, so that in once anything happens to the power of route operating the mining house, the battery will furnish the narrent. In such case, the hattery will furnish the ourrent. In such case, the hatter will furnish the hattery will furnish the hatter will furnish the hatter will furnish the hatter will furnish hat in reserve. It med not be a very large battery, only of sufficient capacity to operate the hoists for say, one half day, see the hatter will be such as the same will be such as the

brought to beer, through Fechington, Department of Compacts and labor, mines can be compelled to putte entitiony power for

9. Electric central station over-load switches.

(All tag central stations have main switches which are operated by batteries when the over-load comes on. These batteries are floating authorities are floating another line or the contract of the contract o

May 26th, 1911.

Mr. D. Basch, Switchboard Engineer, General Electric Co., Schenectady, N. Y.

My dear Mr. Basch .-

When I returned to the Laboratory the other day, after having discussed this matter of operating your smitches in power stations, I had a type A-4 and a type A-8 battery put on test, to enable me to determine just what type to best suited for this service.

The type A-S proved most satisfactory, the discharge voltage on 400 amperes being as follows: At the end of 1-1/2 seconds voltage 1.04, at the end of 1-2.5 seconds voltage 1.07. At the end of 2.5/5 seconds voltage 1.016. At the end of 15e seconds voltage 1.

So type A-B cells, you can float them on the 185 volt line and to sure of 80 volts at 400 suppers, whenever the direct orient breakers need them. You can lot these batteries remain floating on the line for long periods of time, without further attention than replacing with water about once a week.

Yours sincerely.

(Signed) M. R. HUTCHISON.

All large power houses and this system, and should be called our The lead bettery deteriorates rapidly, by reason of its being on charge all the time, and being seldom used. The Edison Battery will stand this over-oharging indefinitely with-out any injury whatever.)

o in Mr. natchison's aliberate -hands

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(This is in the hardnison's

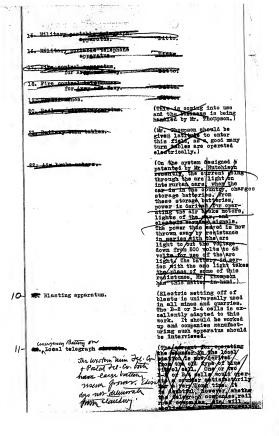
Wineless

(A law will soon be passed necessitating the equipment of all wireless apparatus or all wireless apparatus with a releave storage battery. In Hutchison attends the mether of the Board in Estington or 188 25th laufant and wall advise lafer as to the best method to pursue opinios tion.

(This is only coming into use gradually and work thereon will be of little avail of the present time).

14. Elliery portable wireld

(This is in ir. Hutchison's hands ...



for this more expensive Edison Battery as the blue vitrol cell is giving very good satisi )tion.) (The American Telegraph and Telephone Burglar Alarms. Co. use a large number of storage batteries for operation of burglar slarms, and should be interviewed. There are also a number of private burglar alarm companies that should be interviewed.) m. Fire alarme. (Every city and town in the U.S. that is equipped with a fire alarm system uses storage batteries. A town of the size of West Orange, for instance, uses a five ampere hour cell. The discharge oursent is very low. They have reserve battery, using one sot of cells for 24 hours, and throwing it off and putting it on charge for 24 hours, while the other set is being used. The Gamewell Fire Alarm people should be interviewed in this matter, as well as all independent fire alarm apparatus manufacturers.) (The temperature of cold storage boxes used by butchers, etc., is regulated by a thormostat, which operates the m. Thormal Rogulators. electric motor to start up or stop the compressor, as the temperature within the Storage box goes up or down from the oritical point. Such manufacturers as the Brunswick Refrigerating Co. New but or unsaled a tributeting to. hew Brunswick H.J. and other menufacturers of refrigerating machinery should be interviewed.) The temperature of Build-ings also controlled by Thermostat. (All mines are equipped with large, ven-tilating fans, usually electrically dri-ven. In the event of failure of the wer Ventilating fans. 13 source of supply of ourrent, these fans should be oper ated by storage batteries ling squinment onld-be-interviewed the matter (A great many manufacturors use exhaust Exhaust fans. fens for taking away gases, etc. from processes of menufacture. In the event of failure of the supply of ourrent, those fens will stop. A storage battery insta led to not in emergency will be savissble. Exhaust fan and ventilating fan manufacturers should be interviewed. (The physicians and surgeons of the U.S. should be circularized on a complete small fan motor outfit with Small fan motors. Bedieon Storage Battery, for use with their patients, during warm weather. The lives of Mr. Reison's chauffeur's wife and baby war sand the poor summ by an Edian Jan moren operated by Esisin Butty,

were so d this past Summer by the le of ong of the Science and far actors Operated by national lattery.)

Sewing machines.

(Large manufacturers of dress goods, shirt waists, etc. operate sswing machines. Sometimes the power goes off with consequent loss of time with consequent loss of time and it might be found advis-able to see some of these people to determine if they would not be willing to put in an Edison Eattery to be used in reserve. Sewing machine manufacturers should be inter-viewed with a view of using Edison Battery on their elsotrically driven sewing machines they supply to in-dividual households.)

Vacuum oleaners.

(All the vacuum cleaner manufacturers should be seen, as many of them operate electric vacuum oleaners which cannot be used in many instances, because of the absence of power,. A great many of these vacuum oleaners are installed in residences, where nothing but alternating ourrent is available and only at night. with a rectifier to charge the storage battery, the direct current vacuum cleaner can be used, and it might be found advisable to take this up.)

Cigar lighters. 20

(All the manufacturers of cigar lighters should be seen, because they all use dry batter-ies for operating these cigar lighters, The American Electric Novelty Co. manu-facture a cigar lighter. The American Tobacco Co. and the United Cigar Stores Co. could furnish a list of the oigar lighter manufacturers, that are the best, and they should be seen in this connection.)

Phonographs .

(The business phonograph would be used much more extensively in places not supplied with power for opera-ting. This battery can also be used for operating household phonographs.)

22 Household moving picture machines.

(This little machine, which will soon be on the market, oan be operated as to its light, by Edison Storage Battery)

21

11

6. Local batter telephonee.

(In all suburban districts and small (owne, each telephone has two or three cells of dry battery for operating it. These dry batteries deteriorate rapidly, and it is a control of the con

Gentral battery telephone systems.

(All telephone manufacturers use lead storage batteries for their central battery. These will vary in size from the A-4 to the A-12, depending upon the load, The saleeman handling the telephone business should study up on this matter by referring to curves of performance which we already have;

A Electric revolution indicators.

(There are a number of instruments made which indicate the successive revenues are resuccessive repeated to the the main shaft, operating devices places at various places about the presises, or about the substitute presises, or about the places of the beautiful president of the places of the purpose on be used for this purpose.

Door belle

(Maison Battery of cylindrical form can be used for several years for operating door belle, floor; pushes; etch; 'in residences, before it is necessary to re-charge them. The present dry batteries go out of use by reason of the high temperature of a house, dry, heat, etc., in the Winter time.)

😘. Gae lighting apparatue.

(All gas lighting apparatue ie operated by dry celle. The Edison Battery cylindrical form is excellently adapted to thie, and will

run seve. I years without oharge. Gas lighting menufacturers should be interviewed).

41. Included the deaf.



Factory machinery, lights, and temporary power from batteries on trucks.

(carages have central stations equipped with electric trucks, and can left the known among the menufacturers that power from these trucks can be supplied in case of emergency by running the truck to the premises, and commerciary up to the power and lepting to the commercial control of the commercial control of the commercial control of electric trucks can use their controls for this purpose.

28 th. Electric self-playing planes.

(A number of these have come into use, and the selfplaying piano people should by be interviewed in the matter.)

44-- Passate non-Lattlechtps.

The sector to the law.

46. Dry bridge.

(hr. Thomson thould be gripples in the control of t

40. Portable electric drills.

(These drills are coming into use universally in garages, etc., and meny times on outside jobs, they cannot be operated because of the absence of power. The portable drill manufacturers should be interviewed).

should be pushed).

30 . Portable riveters.

. Tree spraying apparatus.

(The same applies here).

(The use of sprays for preventing destruction of trees by incore is coming into universel use. These prays are universely incore in the prays are universely use. There is no reason why they should not be operated by sorace betteries with electric motors. The manufacturers of much appearatus should be interviewed.

32 56. Cement Blowing apparatus.

(A new system has recently ome into vocte, by which owner is sprayed or blown onto the steel work, instead of being put on by hand, as by lascos, and the steel work instead of being put on by hand, as one of the steel work of the steel work of the steel of the steel work of the steel work of the steel of the steel work of the steel work of the steel of t

51 Teg hymna and area.

-Submarch

33

(-This-matternio-in-Hr. Hushison 6

Me Electric time systems.

There are a large number of Heatirio clocks in use incombischools end Actories throughschools end Actories throughschools and Actories throughincome the content of the conschools the circuit every fautesending current income, the sending current income, the consending current income, the sending current income, the sending current income, the sending current when the content income, and the content income, and the content in the matter, as a sending current income, and in a content in this matter, as a sending a sending content in the matter, as a sending a

netos, with no battery. But they are expensive and are not in as much use as the battery sperates.

ing

in it.

outfits).

4. Electric toys of all kinds.

(All manufacturers of tops should be interviewed. They use now, dry barbers of the control of th

FOR LIGHTING this. Decluse it Acteriorates rapidly This matter to in Mr. Thompson's hands The law will soon compol the illumination of subways by storage bettery light, or a reserve storage battery in the power stations; to take cere of the lights in case the power goes off. Subways. (In No. Disapports Department) . /3 . Car inspector's Lenterns. (The small cylindrical cell is excellently adapted for this kind of work, and should be pushed for this). Train crew lanterns. (The same applies). very satisfactorily.) 10: 3244

 Automobiles, lither in battery slone or in conjunction with dynamo.

Chore are a large number of lighting outfits being installed on automobiles. The objection that has been raised to the Edison Battery in the third for own of the Edison Battery in the first of the Edison Battery in the Edison Battery in the Edison Battery in the Edison Battery of the Edison Battery of the first of no moment however. This is of no moment however headens when a corrist stand-the lights as brilliant as when moving. The battery is simply to take care of the lights when the speed of the engine falls below a corrist argument is simply to take care of the lights when the speed of the engine falls below a corrist argument is groundless, and the Mattern being strongless, and the Mattern being installed will see move. Lead Batterles now being installed will see Misson Battery will come of the Chemother the Edison bettery will come of the pushed very hard!

Mining lamps.

(All miners use a Lump. The oylindrical cells can be misd for this purpose to great advantage. Large mine owners should be communicated with on this subject. In fact, a complete miner's lamp should be gotten up and sold with Edison Battery).

8 Police lamps.

All policemen on night daty overy an impection learn for impection learn for inspecting looks of doors, etc., these learns are no operated by dry bettories. Easy thousands of the Raisen Battery of cylindrical form one he sold for this furnishes. The property in the control of the form of the the for the form of the f

Post of the second seco

// Die Night lamps and clocks. (The American Electrical Novelty Co. and other make a large number of clocks, which, by pressure of a button, can be read. The small cylindrical dell should replace the dry cell for this purpose). Shops, Offices, etc., after power is off. (There are many factories, lighted by their own dynamos, which shut down at 6 c'clock. In the event of the officers of the company desiring to work after dark on the books, etc., arrer carr on the nones, etc., they have to make kerosene lamps. A theory attent outlit would be very advantag-eous in such work). (If proper pressure is brought be. Emergency lights in theatres. to bear all theatres can be compelled to put in such a battery for emergency in case the lenter process by record at the next the continuation of the current from the many the ling current gro 178. The sxiTS theatre can be lighted by the storage battery famer. 10 X Stage ballet and miscellaneous (There are a number of ballets staged in which small electric DRAR. steped in which small electric lamps are used on the person of each dancer. The cylindrical cell is excellently adapted for this work. When a show is on the road, they cannot always get the small dry batteries for the electric lamps, but can carry the Edison Battery with them and have them charged from time to time, as they may need it). Country houses. (Then an Thomand ) utry + subwit mes still never see quience engine, driving a degramme, newterly in an out leave, with them Butting located in the cellar,

(The same holds good on yachts). (There are quite a large number of gasoleme and horse driven buses that must be illuminated inside. The storage battery is coming into extensive use for this purpose. The Edison Bettery is best adapted annufacturers should be interviewed in this matter). . Omnibuses. (In many instances the individual lighting of tables in the center of dining rooms is distributed. A small Edison Battery accomplishes this excellently. The Blackstone Hatel in Chicago is o equipped. Hotel & defe dining tables.

Yachts.

Carrying day or night loads of small plants.

(There are large numbers of plants throughout the country which are now running day and night, having at the the country and t Mison Storage Battery oan be used to great advantage in such used to great savantage in such ...
work) in the savantage in such ...
bland turning light long down the factory the factory of the savantage of the savantage

not be used to charge storage batteries for lighting country residences, operation of farm machinery etc.)

(Various schemes are on foot TVARIOUS SOMEWES are On TOOY
TOT USING the tides to generate
power. As the flow of the tide
is intermittent, the power must
be stored. The Edgen Battery
is excellently sdapted for this purpose).

(The same holds good).

(Efforts are being made to oncentrate the heat from the sun to boil water to operate steam onglase; to drive dynamos. Owing to the uncertainty of the weather, this power must be stor-od, and Edison Battery is best adapted to this work!

(There are a large number of rivers and streams that commot be dammed up for ordinary turbine operation, but which turbine operation, but which are still available for power by the use of large paddle wheels turned by the flow of the water. Power can be stored up in the night-time to augment the dynamo the next day for the operation of electric motors operation of electric motors for form machinery, etc. Some times this power is not suf-ficient for the operation of schedules will jowe to the 12th night, would operate these mills the next day.

. Storing power generated by tidal motors.

5. Storing power generated by wind-mills.

. Storage power generated by wave motors.

Storing power generated by solar engines.

M. Water wheels.

2 Reserve power for heavy demands.

fre used in a unador. Such motaners to man proper + advantings)

 Utilizing and storing power, now going to waste in emptying and filling canal locks.

A Total Total

then wessels pass through domainous the nature math a meditation of the control o

10. College laboratories and test stations.

(All colleges and laboratories use storage batteries for pursues to the storage for pursues to the storage for the coursent is not adapted. These batteries receive very little attention, and in the case of lead batteries, deteriorate through lack of attention. The Edison Battery is the best Battery in existence for this laboratories should be canvassed in this matter).

1. High potential, small unit

Im all colleges and laboratories, it is mosessary to have sooses to very high direct current voltages. The lead cells now used for this purpose are very small, but deteriorate very rapidly. They got very little use, but are needed quickly what the ungency arises. The one super-chous cell is large enough. The cell of the cells of

( The ney, Edison Co mitti mun carry two at Edison cells to [ 155] house mittis by. Currier of 250 wings frea from exception of

3 - want meter Jesting 1

Dr. Goldstein:

I am sending herewith, according to Mr. Edison's instructions, the electrolyte found in A-6 cell, No. 23565, returned from

The tubes in this cell were badly buckled and Mr. Edison desires to get a complete analysis of the solution to find if there were any impurities which would have caused this trouble.

I am also sending a sample of electrolyte removed from battery used by the Chird Avenue R. R. G. Will you kindly test this for specific gravity and percentage of sulphates II am also sending an A-6 can containing sediment for analysis. This sediment was found in A-6 cell 459 returned by the Springfield Waste Oo. Nov. 7, 1911. The electrolyte in the cell was found to be very weak (specific gravity 1.035). Please determine the total weight of sediment, percentage of iron, hickel and mercury, etc.

Walter E. Holland

WEH: EEB

November 11th, 1911.

Gentlemen, -

We have sent you the following telegram today, by Western Untion Telegraph.

MR. EDISON REQUESTS TELEHRAPHIC ANSWER IF YOU WILL SHIP ELECTRIC CYCLE AS PER MY LETTER OUTOBER SOTH AND IF SO WHEN.

" M. R. Hutchison

P. O. BOX 472

Dear Sir: -

## ELECTRA CYCLE CO.

Theremoner, Burghe, Nov. 11th. 19 11

Mr. Thomas A. Edison,

Orange, New Jersey.

(attention of Mr.M.A.Hutchison)

Your telegram received, which togother with your favor dated Oct. 20th, was given to the writer for reply.

We regret very much that we are not in a position to comply with your request at the present time, and it now looks as though it might be another 60 days before we can again take the matter up with you in carnest.

The delay at this time is largely due, first to the reorganization of the above company, largely for the reason that we think there will be a greater demand for a machine such as we are planning to manufacture than the former tempany was prepared to produce, second because of the writers absence from the city, and still further delay because of the writers absence from the city, and still further delay because

We appreciate the spirit of your lotter and will be glad to take the matter up with you again just as soon as possible to do so, and will be pleased to have a personal interview with you when the time comes in thought best to do so.

Thanking you for the interest you have shown, we are,

very truly yours,

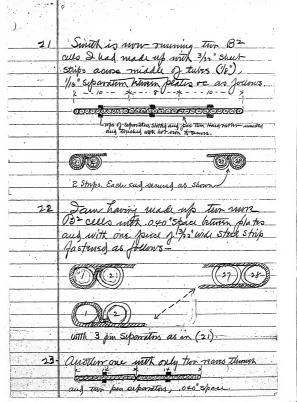
The Electra Cycle Co.

Sunday, nov. 12,1911 Ripusintation of "american addressing + mailing Co., my, will be out monday with prices to of Yests of architects, Minis, tex. for circulargation, one at a time, mouding cost of maining and addressing from new York direct I tave written E. V. Hartford for permission toos ind shotographer to his Summer It to photograph Edison Batting I ghing plant also for data as to size + make 2 Engine & Synamir Have telegraphed for date of Shipmens of Electric Prayele Have written for prices on Jucycle to equip with motor & Battery Have ordered an invalid chain Have telegraphed my man Asphusom sayion, to come & brangs and take about taking hold of chailangation with

am getting up an Ekotne reading Lamp to run from 5- B4 cells, for proper affected and gas in residuce Lawn mower Battery - motor outfut is disigned and mady for work. man pur on it SEE Some about advitioning stunt he has workerd up for use with Small muchinie Have had my letter vs. Klaxon Battery photographed and printing 10,000 for mailing Have Finished Scientific amuican ag. + will send our for your approval. am getting photograph of launch that sank with Edison Balley (OH) Proparing cucular little to Electroian shops in all cities calling attention to los of current in flaming aras, + use of Edison Batting to private, They well after glanning are users + wire them

up to use Edison Battery They will sell to them Write anderson advising him to get reformts army Many Journal ad's from purtishers (money for us to Junior them to him) to distribute as he sees fit. Jaking up with Chemical Brokers dispo-Sition of the 100 to Copper Oxy Chloride inc will have as outpur by product daily, from Bathy Co. Latting Bot do this so he will fire OK about it Scuding report of Smith on Som Clad culs, to Form, with letter, will send latter toyou to read Posting notices in Lat + Battery wakes that reponents of army Many Journal can to had for asking through Foremen & Supto Trying to ger 6 copies Exide Directions 19. Made up 4-B2 Cillo Standard. Bonig Charge + Lischargs 10 byclis + 918 indurational chaiactustics (smith). Then divide with

pairs, grounding + and - of Each pair or can, connecting cans together assisting caus with jumper, Waking 3 pais in Series . 6 montes 1304. want to know result for room savid in Sutmaining especially of Will 585 To characteristics g cul range af connecting thus The short tubes (1/4") I had made up with flaks + a "/10" mokeled iron wire through center shows up high on 3 hour discharge In hor tests now Have S6 long tubes (14) with flake, and " " with wins + flake made up to sum on 3 hour discharge together. all same hydrate. Want to Sett /2 this idea one way or other, with modern tubes because it onghir to impur 1/4" tute interned resistance on heavy discharge



Samuras 21-22-23-24, with stipsuds mitely to mig. Will mm all in 33% KOH + Ser which stands up Book am in a hurry to diturnine this for my submarine cells Have Surscribed to page in annapolis midshipmen's year Book "Lucky Bag" That goes to all officers of amapolis and all midshipmen . Good Am revising unstructions in Edison Ballon hausting , Dow Complicated now \_ Will give Jon same for cuticism when completed. House Lighting meadowers of rough deast for polisting Consider the took tels nec architicas + builders, one non teclinical pupile can be shot any pully, the latter meely electralist + attacherly bounds

My DEar Wail = White Thave perfected mystorage Gattery Sothat & Geleson I can substitute the Juclimch Callery in the Taleshone in house with a butter storage Callery Ray Mesame apace of theele hold its charge for at least one year, and be good for 20 years The Clast of seech by a woved only be la few Cents, if you think such a thing desirable please send one of fores telephone Experts over to investigate & I will Sign

## RAILWAY EQUIPMENT. CAR TRUSTS.

20 BROAD ST.

BETARLISHE 1879.

New York, Movember 14, 1911, 190

Mr. William H. Meadowcraft,

Edison Laboratory,

Orange, N. J.

Dear Sir:-

Referring to my visit and conversation with Mr. Edison on Friday last, I would like to have another interview with Mr. Edison on the subject matter of financing the deferred payments of relirodde that install the Edison Storage Battery in lighting passenger cars. I will bring with me the form usually used in making up "Gar Trusts," of which I have financed many millions in the past 25 years.

Almost any day and hour between 11 A.M. and a P.M. would best suit me.

Truly yours, Phul Colore

RC/SL

B.S. gem

SUBSECT: Edison Storage Battery.

611/12

## AMERICAN TELEPHONE AND TELEGRAPH COMPANY.

15 DEY STREET.

JOHN J. CARTY. CHIEF ENGINEER.

NEW YORK. Novem

November 16, 1911.

Mr. Thomas A. Edison, Orange, N. J. 17 17 WOH

Dear Sir:-

Owing to Mr. Vail's absence for a few weeks in California I am answering for him your letter of the 13th of this month regarding the use of your storage battery instead of primary batteries at subscribers' stations. I have directed Mr. L. F. Morehouse of the office to thoroughly investigate the subject. He will get in touch with your laboratory and arrange there with wheever may be designated by you to take the matter up with him.

Yours very truly,

origineer.

JJC-EMR.

Or Sur Now Worthouse aver com time and on phone to torrate sweet weeks home on the Day he decided to come

November 17,1911.

Electra Cycle Co., Forh and 10th Sts., Detroit, Mich.

Gentlemen,-

0 am in receipt of your letter of November 11th.

I note you are an a pos-ition to take up the matter at the present time, so suggest that we lat the matter drep, until you are ready to do so.

Yours very truly,

Chief Engineer of Mr. Edison.

nov. 21,1911 Mr. Goldstein: mith a sample of electrolyte from on A's battery taken from a 3½ ton atlantic truck, you. 15, 1911. Please analyze this for KOH, SiOH, 1/2504, and N2 CO3; also give specific granty. Please send me à report on this are soon as possible, as this hatten, has given trouble which we connot explain.

Section Gall

WEST LYNN, MASS.

In Reply Refer to

Mr. Thomas A. Edison, Orange, N.J.

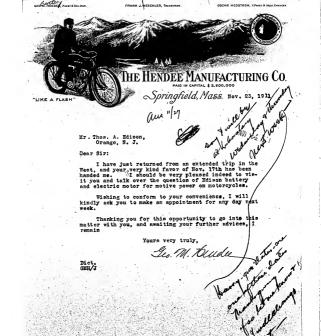
great satisfaction.

Near Mr. Edison:

Since calling on you last Friday, I have discussed matters appertaining to the use of your storage battery with a number of my Associates, and some of the principal Executives of the General Electric Co. I feel very sure that the results of this discussion will be prompt and I hope to your

FMK, MEH

Yours very truly,



a number of alls the howyork howy yard have shown ip poorly and it may be due to bud electrolyte be surport that prosibly acid on some foreign substance gotten into the polution. Mill you please make much tests as will determine this and let me have a report not later than Monday. a man will leave here hunday night lating an early Thankay Morning train for muryor and I am arisions he shall have some information about this before he goes

December 2nd, 1911.

## MESSRS: EDISON AND DYER: Please note that we have this morning received the following orders: T. A. Edison, Inc. (Australia) \$1200.00 60 A-6 1350.00 1300.00 130 B-4 1520.00 1300.00 130 B-4 1520.00 130 B-

HRL/JW.

Huten tell for to hald up have sold

Copy of letter received from M. E. Fox, from St. Petsrsburg, Russia, dated as above.

Captain As velies's friend, who sent a copy of same to the Government Inspector at the Newsky Works, and the latter loaned it to the engineer of the Newsky Works, who loaned it to me. I have not seen the original letter, but only a copy, a facedmile of which I enclose herewith, witnessed by the Newsky Engineer.

against the Tudor Company, since they only say that the battery is not suitable on account of Smith's report (the Hamburg Fire Ohier) which in Russian, accompanied their letter. When the Berszer with the Company had sentioned things hostile against the accumulator, but when you translate the letter, you will see it is not so.

I have not enclosed Smith's report in its Russian form, since you probably have a copy in the original German;. He is the man to imm on.

I have made an appointment with General Brink's office this week, saw General Dubroff, his assistant, who said the former would not be here Tuesday. I had made an appointment to meet him Wednesday, and I think my work will be through here.

Army in regard to our bettery for field service. He said they used primary batteries for this work, so as not to require charging apparatus in the batter for field service. He said they used apparatus in the batter islaid. There is no to require charging apparatus in the batter islaid. There is the said they conduct the said of the said they are the said the said they are the said they are the said they are the said the said they are the said the said they are the said the sa

They have a disconcerting way here of giving one an interview, in an anti-room in the presence of other people, as that privacy is impossible. While I was talking to the officer, there was a well dressed civilian in the room, and when I come going the way to be a subject to the control of t

I was surprised, but took his card, and made an appointment with him at his office, for the next morning. I didn't know what I was falling into, so many quesr things happen here-

His card I snclose. Its English translation would be

nomewhat as follows.

Roman Romanovitch Kolby

Engineer, Representing the technical firm of R. Kolby, 36 Boznesensky Prospect,

St. Retersburg, Russia.

His firm has a large place, and the business would correspond to that of an engineering contractor in our Country. He said he had heard me talking about the Edison Battery, and was wondering why an American Representative should be here, since he had thought the German Company handled this business. I explained that I was showing up the new type Edison Cell, with which Bergmann was not supplied.

He is, it seems, one of Bergmann's customers, as he carries our cells along with several lead types in his catalogue. His query was as to whom he would do business with in futurs.

I told him that we were making plans for reorganization, and that things would probably be settled within a month, and that I wasn't at liberty to say what these plans were at present.

Hs stated that he was strongly entrenched in the Artillery Department here, and had sold many of Bergmann's mining lamps to them, and suggested that we allow his company the agency for Government work. He seconded this by saying that if more than mere worth of an article to get it into the administration, gut that he felt that they were in a position to do:

I said nothing about de Passano or Monnot, but told him we would consider his proposition, and let him know later. This then is for your information. I have no comment to make.

Mr. Kolby is personally acquainted with Mr. Kammsrhoff, and he can probably tell you more about him. He showed me an auto-Fraphed photograph of Mr. Edison taken some twenty years ago, I should judge, bearing the inscription, "To R. Kolby, from Thomas A. Edison." It was given to his father, but he did not know the circumstances under which it was given.

He showed me through the work-shop where they were manufacturing v/arious appliances for lighting of warships. He evidently judged me discrete enough to see these secrets. Captain Pissauf wants to write in his Army Journal a series of articles rassaut wants to write in his Army Journal a series or articles dellinitoria the modern Edison Battery. He mays his colleagues are additionable to the modern Edison Battery. He mays his colleagues are other things; he wants to put in Holland's Temperature Papers which he says he will translate: I told him we would have no objection to his writing a description of the cells, and I am furnishing him with this in French, as I thought it better to take the matter up with you before putting in Holland's Paper.

opportunity. We will get good advertising width coering us a cent, and Plasauf is a sun to advertising width coering us a cent, and Plasauf is a sun to a live will give him foliant's paper when I leave here, and if for any reason you do not wish this, telegraph me wherever I may be, and I will stop it. Molland's paper would not appear for two months yet. I urge you to tell him, "God bless you." Mowers, I thought it best to mention the matter.

Yours sincerely,
Maurice E. Fox.

P. S. Let me remind you that Dr. Goldstien, the chemist, is a Russian, if you need a translator for that letter.

ing cells: 15654 - filled always with top water instead of distilled 2752-3-4. Here cells have leavy iron pochety in neg. plates 10794-5 Original solution 21 % SKON + 509 G 10796-7

December 18, 1911.

Mr . Edison,-

In regard to attached memorandum from Salzman,-

calls constructed are to have these six calls constructed at once, in order that the Earner Safety Lamp Company man could get them to put in the lanterna he had constructed, to be submitted as samples for test to Fort Hancock.

The Government is going to place an order for 2,500 of these lumbras, the first part of February. The uncle of 7. Robinson, F. S., who is connected with the Banner Safety Lamp Company, is a Government Officer who is going to place these contracts. Nr. Robinson is relying on us to supply the Edison Extrement for them, and is not antering companyions ample with lead bettory. He does not the place of the contract of the contract

K. R. HUTCHISON.

#176

necember 20th, 1911

Dr. Goldatein:-

I send you herewith two A-8 cells, Hos. 6954 and 6971. These cells are from a 60 cell battery returned to us unise calls are from a bo cell sattery returned to us on becember 15th by the thatnet Frunck Compeny or receiving report No. 3682, Among the battery of cocals eighteen cells ended signs of greatery of gand on cutting some of these open and for two or three tops of the plates were considered for two or three tops of the plates were considered. inches down apparently from acid which had been saded to the cells.

The two cells I send you have not been touched or charged in any way since receiving but show signs of great heating es did the ones we cut open and found corroded.

Mr. Edison desires to have a complete analysis made of the solution in these cells and of the sediment elso to determine just what chemical mey have ceused corrosion of the tops of the plates.

This battery was sent in to us in November also, by the Atlantic Truck Company and about one-third of the battery was found to be low in capacity. We changed the solution in the low cells and their capacity ceme the solution in the low cells and their capacity come back. The whole battery was then given back to the Atlantic Truck Company in good condition. The two cells I send you were among the ones that were low in cepacity when we had them here in November, and the solution was renewed in them on Hovember 15th so that any impurity found in the solution must heve got in since that time.

Kindly report on this to Mr. Edison and to me at your esrliest convenience as it is a very urgent matter.

# CHARGING THE STORAGE BATTERY

Profitable Business for Central Stations, Suggests an Electric Light Man—Inconsistencies of Some Stations.

Deprecating the lethargy of electric light coupsnies in general, Water E. Rogers, who is a British electrical engineer of considerable reputation, advance the not un-heard of theory that in the charging of small accumulators by central stations direct—stein small accumulators as lately have become more common than ever, owing to the general adoption of electric lights for automobiles—there alumbers the evern of an exceptionally profitable business.

"In these days when so much is said, and more written, house they load for it the electricity works all over the world," he says in exponsing his wise, is the Reerical Review, "it is a matter of surprise to me find that while work the inserting advertisements, for representatives to push for installation of cooking and heating appliances, etc., little or no attention is being pilances, etc., little or no attention is being within any the cooking and heating appliances, etc., little or no attention is being within any the cooking and heating appliances, etc., little or no attention is being within any the case of main they to advert the cooking and heating and the said of the said and the said of the said and the said of the said

"One of my late chiefa," he continues, "Ald everything to discourage vells being sent to the works to be recharged, by charging for them at enorbhant and procharging them at worbhant and procharging to them at enorbhant and procharging to the sent of the sen

But even in cases where motorists are catered to, more or less, conditions are, in his opinion, very bad, to say the lenst, "Looking around such works," he continues sareastically, "what do we find?" And proceeds to maswer the propounded question

I'm he meter room, or nift sugineers and flysific, user is a piece of acid-eaten and flyfisc, user is a piece of acid-eaten and flyleng acid-eaten acid-eaten acid-eaten acidholder and, perhaps, contained acid-eaten acid-eaten acidloider along eaten acid-eaten acid-eaten acidloider acid-eaten acid-eaten acid-eaten acidloider acid-eaten acid-eaten acid-eaten acidpic acid-eaten acid-eaten acid-eaten acid-eaten acidloider acid-eaten acid-eaten acid-eaten acideaten acid-eaten acid-eaten acid-eaten acid-eaten acideaten acid-eaten acid-ea

'ry is a portable voltmeter, reading

#### THE MOTOR WORLD

"In some provincial towns where I have resided, every motor engineer, garage, cyele renairer, plumber, etc., has had his own charging equipment supplied from the street mains via the shop lighting, etc.; the local station man rejoicing in the fact that he was charging a number of accumulators through lighting meters-i. e., he was obtaining six or eight cents per unit for what might rightly be considered power load. This, of course, sounds very nice, and relieves the works of all trouble and the usua row which takes place when Alderman Grouser's old battery happens to have been put on charge the wrong way round, as is invariably done somer or later. But it does not tend to popularize electricity when the local paper comes out with an acc of the destructive fire which gutted Messrs, -'s premises last night, caused by the lusing of electric wires, and the usual stock comments thereon.

"What really happens is that just as the electrician of the particular motor bodger is leaving in the evening, a 10-ampere-ho hattery in a celluloid case is brought in t he charged by 9 A. M. tomorrow, as the owner wants to start for Timbuctoo nn hi new 'Rolling Romper' at that hour. 'S please give it a good charge.' Our cleer cian places it on the wooden window ledg where there are already three other simil hatteries on charge adjacent to two tins of cycle oil, a curtain, and some dirty waste To connect the hattery, he takes a piece of wire, bare or insulated, it matters not, and twists it round a terminal, switches on, and bolts for his ten. Nothing happens at once but after a time heat begins to make its presence felt at the terminal which has th twist of wire round it. This is aided by the battery being on wrong way round. Fro quence of events from the time the celluloi ites to the arrival of the fire brigade as the fusing of electric wires, etc. Anoth piace where the first spark actually occu is where the brass screw of a terminal is actually burned, or more often, soldered into the lead; here corrosion frequently takes place, and the terminal nut being too stiff for fingers, having learned that nuts should always be tight, we assist the coming fire by the none too gentle use of a

pair of piers.

"Since the condonal ignities of a cellu"Since the condonal ignities of a cellu"Since the condonal ignities of a celluresper treatment is accorded, it being only
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#### NOTICE,

Recharging Accumulators.

Whilst every care is taken of batteries, the company cannot accept responsibility in regard to damage done, or defects arising in the course of recharging. The leaving of bateries for recharging is taken as an acceptance in

"I have, not copied the above as a sample of English, nor can I advise upon the strict legality thereof, but I give it simply to convey a lint to the unwary, as damage, either genuine or imagined, will undoubtedly arise when any number of batteries are dealers.

"For instance, say it is the switchboard attendant's duty to look after these cells. However much he knows about peroxide of lead, it is not right to expect that he can invariably sandwich the duties of synchronizing an alternator, just as load is coming on, with connecting up a small battery correctly as regards polarity, time and hard usage having frequently obliterated all marking on the box. So that occasionally a mistake will be made, with disastrons results as far as the particular battery is concerned. It must also be remembered that quite a lot of batteries brought in will be completely exhausted, as Mr. John Doc. whose license bears endorsement, knows nothing, and cares less, about 1.8 volts per cell as a minimum, beyond which he shou not discharge.

"Having got to work and commenced to charge, one quickly discovers as gassing takes place, that the vents provided with many cells are totally inadequate and nuable to pass away the gases formed. Onite 20 per cent. of the cells brought in will require filling. Here is a small difficulty, for not one cell in a hundred is designed to admit a hydrometer, or even to allow the use of a section or pump hydrometer, by which the electrolyte is drawn into a tube, thus providing sufficient vertical height to float the instrument for ascertaining the specific gravity of the liquid. Again, many of the cells brought in in connection with portable lamps, etc., will have microscopic or water."

HAND THIS TO MR. ELLON

2 Mentes Dried mours

## [ATTACHMENT/ENCLOSURE]

Wendscraft Exclus Hayes & Co

BATTERY-STORAGE (1911) Hetch = For teating Busmith case By colls Make set tubes the perforated strips having Twice as frick a plating of kickel as Mickel Smith from them in Reg way as we do regular maket Celli - don't try stinks on just want to ling the a new can the enudo cohed has the nickelplat removed by Coarse En of then reconsumble of R nichel Connected to Ca

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## PRACTICAL ADAPTATIONS OF THE EDISON STORAGE BATTERY.

(Compiled by M. R. Hutchison.)

#### FOR THE PROPULSION OF-

1. Electric terminal locomotives. (A epecial type of

Mining locamotivee

2. Mining locomotivee

3. Industrial plant locomotives.

- battery which can be charged and discharged at a very high rate."
- (Not affected by conouecion of rough handling as in coupling the train up, etc.)
- (Dieplacing the dangerous steam, compressed air, and super-heated steam locomotives).
- 4. Industrial plant indoor truoks. (A number of hand truok this right, The right over a region of into this right. The field overs handling beggage, freight on biers, machine patts in naturales, sto.
- 5. Fire Engines and fire trucks. (Much more dependable than the gaodine engine, Always ready. Might be able to interest the American.

  La France Fire Engine Co. in Newski,
- 6. Lawn Mowers.

(Horses disfigure lawns by their hoof-prints. Gasoline engine lawn mowere are not perfected yet. There is no reason why the electric lawn mower will not surpass all other forms of power for this purpose.

7. Road rollers.

SOLUTION OF THE PARTY OF THE PA

win had a time

(Road rollers must have; weight? The steam engine is onnoxious in office; and will not be tolerated very much longer. Hight try to interest come of the road roller manufacturers in this electric proposition.)

- 8. Street railway cars.
- 9. Interurban care.

(The same form of battery that we use in electric terminal locomotivecam be used in interurban high epeed care, there's very every coming the lose of transmission of the lose of transmission of the lose of the los

10. Railway inspection cars.

(Much more reliable than a gasclene propelled inspection oar, as it is not so liable to break down on a main line with consequent danger from trains colliding with it).

11. Street sweepers and sprinklers.

(The wear and tear on olution and gear chifting mechanism is so great, that street sweepers and sprink-lers have not yet come into general use. The electric street sweeper or sprinkler is far superior.)

12. Electric omnibuses.

(Far superior to the gaselene, because of absence of wear and tear on clutch, gaselene engine and gear mechanism.

13. Electric trucks.

14. Electric pleasure cars.

15. Electric motor cycles.

(There is already one motor cycle menufacturing concern that is turning out electric motor cycles. They now use Edison Bettery as well as lead. Any of the bicycle magazines contain the advertisement.)

16. Taxicabs.

The current taken out of the battery in a ten mile run cen be put in again in ten minutes. A five mils run in five minutes, etc., up to about 20 miles, when it will take longer, as the best of a und a high rate, unless it is very well ventilated and cooled.)

17. Electric farming machinery. .

(A gasolene engine, or any other combustion engine in a wheat field is a dengerous proposition. After the wheat is dry and ready for stacking and gathering, a fire will do a good deal of damage.)

18. Submarine bosts.

(This matter is in Mr. Hutchison's hands.

19. Electric launches.

(Excellent for inland lakes, but for heavy sea work, such as on the Atlantic Coast, the gesclene engine is superior, because of its lighter weight, thereby greater see—worthiness of the oraft)

20. Short trip ferry boats.

(Many street reliway lines, etc. operate short forries. An example is at Rochester, M. Y., whose a small forry line, and the street of the short street of the street of t

21. Electric torpedoes.

(In Mr. Hutchison's hands.

#### OPERATION OF

l. Klaxon Warning Signals.

(There are over 60,000 Vlaxons and Klaxonete in use today in the U. S. alone. Each of these Klaxone and Klaxonets is operated by a battery of some kind. The majority of the batteries are lead storagebatteriee. The most universally used Klaxon, type L and the type S, take our etandard B-2 or B-4 ignition sete. They are wound to run from 6 volte, and take about 7 amperes. Their use ie of very short duration each time when they are blown each time when they are blown, and therefore, it can be brief-ly stated that a Type L or Type S Elexon can be oper-ated for one year from a B-4 ignition set, without re-charging or without the addition of any water. This has been done for the past two years on the car of Mr. Hutchison, the inventor of the Klaxon. See ourve No.
48, oopy of which can be
secured from Mr. H. H.
Smith of the Laboratory: The Klaxonet can be run for a year on a B-2 ignition eet, without re-charging or the addition of any water. Of course, it is advisable to add distilled water about every three months; the battery need not be re-charged oftener not be re-charged olterer than once a year. All boni-fide dealers, and jobbere in the U. S. handle Klaxons and should be approached on sale of Edieon Esttery for this purpose. The same battery can be used for ignition and for operating the lighte, but of course, if an increased load is put on it, it must be charged oftener.)

2. Automobile ignition systems.

Where the hettery is used simply to start the ouglino up, and for that purpose alone, it will operate for at least two years without re-charging, but water the B-4. The B-2 chould do this work for a year, without re-charging. Hiere the self-the doubt the charge about one over year, when the b-4. The b-2 chould do this work for a year, without re-charging. Hiere that it is all the time, it chould be charged about once over ye

four month. The B-2 about once every two months.)

3. Gas engine ignition systems.

(There are a large number of gas engines in industrial plants, most of them being ignited by battery.
They run usually about 10 hours a day, and under such circumstances, the battery should be charged about once every month, if the B-2 is used, and about once every two months if the B-4 is used.)

Motor cycle ignition systems. (The small cylindrical type Edison Eattery, taking up loss room and not weighing as much as the standard dry cell, can be used for ignition on motor cycles. At present, dry cells are used univer-sally on motorcycles for ignition, except on the more advanced types that have magnetos. The same battery will operate the lighting system of the motorcycle which is, at present, def-icient, relying solely upon soctylene, or kero-sene lamps. All the motoroyole menufacturers should be canvassed in this matter and dealers and jobbers seen. )

5. Automobile and gas engine electric self-starting. Apparatus

(Within the next year or two, no car of gasolene engine operation will be started by the crank, as now obtaining. Various forms of self-starters, including motors, which act as generators to re-charge the battery after the car is started, and simple motors alone, operated by Edison Battery. starting of a gas engine requires very heavy ourrent. A lead battery will deteriorate under such treatment, because it amounts almost to short-circuit. The Edison Bettery is the best adapted to this work. All the automobile manufacturers should be seen, es-pecially the Cadillac Co., who are now turning out such a device, E. V. Hartford of the Hartford Shook Absorber Co., has also gotten out an electric selfstarter, and, as he has one of the Edison Battery outfits installed at his summor

residence for lighting, he is very partial to the Edison Battery. He should be seen at once. His address is Jersey City, M. J.)

6. Electric oranes and hoists.

(The manufacturers of these hould ne intorviewed, as they now operate by trolley. Oring to the floxibility of control of an electric motor, it is best adapted to orane work. The manufacturers of all oranes should be interviewed in this metter,

7. Electric lifting magnets for orange.

(Fractically all the iton rangestio undersone are leaded on Lake steamers by lerge electro-magnete. If the power circuit goes off and in mid-air, the load falls and is any to injure commendation of the magnetic field of the mid-air, the load falls and is any to injure commendation of the magnetic field of the magnetic field of the magnetic field of the mid-air, the lactric commendation of the second fall of the magnetic field of the mid-air, the sloctric came and holet people should be seen. There are a number of advertisements in the "Electrical World in the "Electrical World in the "Electrical World in the "Electrical World in the Wallectrical World in the W

8. Electric Hoists for minee.

(Saon mine should be equipped with a reserve battery, so that in osee anything heapter stating anything heapter stating the mining holete, the bettery out if furnish the ourrent. In such oses, the bettery only for stating and held in reserve. It need not be a very large bettery, only of sufficient capacity to operate the holdste for the proper present is brought to bear, through Weshington, Department of Commerce and Labor, since the sufficient of the proper present of the sufficient of the su

9. Electric central station over-load switches.

(All big central stations have main switches which are operated by batteries when the over-load comes on. These batteries are floating on the line normally.

May 26th, 1911.

Mr. D. Basch, Switchboard Engineer, General Electric Co., Schenectady, N. Y.

My dear Mr. Basch,-

other day, after having discussed this matter of operating your switches in power stations, I had a type 4-4 and a type 4-8 battery put on test, to enable me to determine just what type is best suited for this service.

the discharge voltage on 400 amperes being as follows: At the and of 1-1/2 seconds voltage 1.04, at the end of 1-2/5 seconds voltage 1.01. At the end of 2-3/5 seconds voltage 1.015. At the end of 1s seconds voltage 1.015.

So type A-B cells, you can float them on the 125 volt line and be sure of 80 volts at 400 summers, whenever the direct circuit breakers need them. You can lot these betteries remain floating on the line for long periods of time, without further attention than replacing with water about once a week.

Yours sincerely,

(Signed) M. R. HUTCHISON.

All large power houses use this system and should be tailed on. The lead bettery deteriores rapidly, by reason of its being on oherge : all the time, and being seldom used. The Edison Bettery will stand this over charging indefinitely without any injury whatever.

10. Ordnance Gun-firing apparatus. (This is in Mr. Hutchison's hands.

11. Ordnance gun handling motors, and turret handling. (This is in Mr. Hutchieon's hands.

12. Wireless telegraph apparatus.

(A law will soon be passed mesessitating the equipment of all wireless apparatus with a reserve storage battery. Mr. Mutchison attonds the meeting of the Board in Washington on the board in Washington on the board in the board will device later as to the best method to pureue in this connection.

13. Wireless telephone apparatus. (This is only coming into use gradually, and work thereon will be of little avail at the present time).

14. Military portable wireless apparatus. (This is in Mr. Hutchison's hands.

15. Military portable telegraph.

16. Military portable telephono apparatus.

17. Fire control apparatus, for Army and Naty.

18. Fire control telephones for Army and Navy.

19. Herbor mines.

20. Railway signal apparatus.

21. Railway turn tables.

22: Air brake motors.

23. Blasting apparatus.

24. Local telegraph circuits.

Ditto.

Ditto.

Ditto.

Ditto.

(This is coming into use and the business is being handled by Mr. Thompson.)

(Mr. Thompson should be given latitude to enter this field, as a good many turn tables are operated electrically.)

(On the system designed & patented by Mr. Hutchison recently, the current go: through the arc light on the current going interurban cars, when the oar is in the country, charges storage battsriss. From these storage battsries, power is derived for operating the air brake motors, lights of the oar, and elsotric warning signals. The power thus saved is now thrown away by resistance in series with the arc light to out the voltage down from 500 volts to 45 volts for use of the aro light. The battery in ser-ies with the arc light takes the place of some of this resistance, Mr. Thompson has this matter in hand.)

(Electric setting off of blasts is universelly used in all mines and quarries. The B-2 or B-4 cells is excellently adapted to this work. It should he worked up and companies manufacturing such apparatue should be interviewed.

(The current for operating the sounder in the local station is now derived from the old type of blue from the old type of blue related to the control of the

for this more expansive Edison Battery as the blue . Itrol cell is giving very good satisfaction.)

25. Burglar Alarms.

(The American Telegraph and Telephone Co. use a large number of storage batteries for operation of burglar alarms and should be interviewed. There are also a number of private burglar alarm companies that should be interviewed.)

26. Fire alarms.

(Every city and town in the U.S. that is equipped with a fire alarm system uses storage batteries. A town of the eize of West Orango, for instance, uses a five ampero hour cell. The dis-charge ourrent is very low. They have reserve battery, using one sot of cells for 24 hours, and throwing it of and putting it on charge for 24 hours, while the other set is being used. The Gamewell Fire Alarm people should be interviewed in this matter, as well as all independent fire alarm apparatus manufacturers.)

27. Thermal Regulators.

(The temperature of cold storage boxes used by butchers, etc., is regulated by a thermostat, which operates the electric motor to start up or stop the compressor, as the temperature within the Storage box goes up or down from the oritical point. Such menufacturers as the Brunswick Refrigerating Co. New Brunswick, H. J., and other manufacturers of refrigerating machinery should be interviewed.) The temperature of Build-ings also controlled by Thermostat.

28. Ventilating fans.

(All mines are equipped with large, ventilating fens, usually electrically driven. In the event of failure of the source of supply of current, these fans should be oper ated by storage batteries The Department of Commerce and Labor should be appealed to in this matter, along with the application for compel ling equipment of a battery for operating the electric hoists. Ventilating fan manufacturers should be interviewed in the matter.

29. Exhaust fans.

(A great many manufacturers use exhaust fans for taking away gases, etc. from processes of manufacture. In the event of failure of the supply of current, these fens will stop. A storage battery instal led to sot in emergency will be advisable. Exhaust fan and ventilating fan manufacturers should be interviewed.

30. Small fan motors.

(The physicians and surgeons of the U. S. should be circularized on a comlete small fan motor outfit with plete small fan motor outfit with Edison Storage Battery, for use with their patients, during warm weather. The lives of Mr. Edison's chauffeur's wife and beby

were say i this past Summer by the use of one of the Edison small fan motors, operated by Edison Battery.)

(Large manufacturers of dress goods, shirt waists, etc. operate sewing machines. Sometimes the power goes off with consequent loss of time

with consequent loss of time and it might be found advisable to see some of these people to determine if they would not be willing to put in an Edican Esttery to be used in reserve. Gering machine manufacturers chould be infortviewed with a view of using the control of the control and the control of the control of the dividual newshole.

32. Vacuum cleaners.

Sewing machines.

31.

(All the vacuum oleaner manufacturers should be scen, as many of them operate electric vacuum cleaners which cannot be used in many instances, because of the absence of power,. A great many of these vacuum cleaners are installed in residences, where nothing but alternating current is available and only at night. With a rectifier to charge the storage battery, the direct current vaouum cleansr can be used, and it might be found advisable to take this up.)

33. Cigar lighters.

(All the manufacturers of older lighters should be seen in clear lighters should be seen in the force of the

34. Phonographs .

(The business phonograph would be used much more extensively in places not supplied with power for operating. This battery can also be used for operating household phonographs.)

35. Household moving picture machines.

(This little machine, which will soon be on the market, can be operated as to its light, by Edison Storage Battery) 36. Local batter : telephones.

(In all s urban districts and small towns, each teleof dry battery for operating it. These dry batteries deteriorate rapidly, and it is a source of constant expense to the telephone Cos. to renew these. Telephone manufacturers should be interviewed on the matter of the cylindrical cell as they will cortainly come into use for this purpose. The Stromberg-Carlson Telephone Mfg. Co. uses 80 carloads of dry batteries a year on the telephones they manufacture and send out. An Edison Battery should operate a tele-phone for several years without re-charging, as it is not in circuit except when the telephone is being used.)

 Central battery telephone systems.

(All telephone manufacturers use lead storage batteries for their central battery. These that the same from the A-4 to the first same from the first same from the first same from the first same from the first same which we already have.

38. Electric revolution indicators.

(There are a number of instruments made which indicate the successive revolutions of engines by contacts closed by electro-magnet in indicating devices places at various places about the premises, or about the ship, if used on board ship, by the place of the purpose, on be used for this purpose, on

39. Door bells.

(Bdison Battery of cylindrical form can be used for several years for operating door bells, floor pushes, etc., in residences, before it is necessary to re-obarge them. The present dry batteries go out of use by reason of the high temperature of a house, dry, heat, etc., in the Winter time.)

40. Gas lighting apparatus.

(All gas lighting apparatus is operated by dry cells. The Edison Battery cylindrical form is excellently adapted to this, and will

run several years without charge. Gas lighting manufacturers should be interviewed).

41. Instruments for the deaf.

(There are a number of instruments on the market for enabling deaf people to hear. They are electrically operated. This matter is in hand, however, and needs no attention).

42. Factory machinery, lights, and temporary power from batteries on trucks.

Garages have central startions equipped with alectric trucke, and can let it be known among the manufacturers that power from these trucks can be supplied in case of emergency by running the truck to the premises, and commercing up to the power and lighting objects of the premiser and the premiser of the commercial operators of electric trucks can use that rown trucks for this purpose.

43. Electric self-playing pianos.

(A number of these have come into use, and the selfplaying piano people should be interviewed in the matter.)

44. Turrets on battleships.

(This matter is in Mr. Hutchison's hands.

45. Ammunition hoists.

(This:matter is in Mr.

46. Draw bridges.

(Mr. Thompson should be given leivinde to tell Edison Storage Battery for the operation of draw bridges, because when the travise to the operation of draw bridges, because when the travise one to the motor, electric motors commot be used for the purpose the motors can be charged when the draw is at 11 place, and the draw operate by motor. This would save keeping up sream the should be unuhed!)

47. Portable electric drills.

(These drills are coming into use universally in garages, etc., and many times on outside jobs, they cannot be operated because of the absence of power. The portable drill manufacturers should be interviewed).

48. Portable riveters.

(The same applies here).

49. Tree spraying apparatus.

(The use of sprays for preventing destruction of trees by insect is coming into universal use. Others to the section of the se

50. Cement Blowing apparatus.

(A new system has recently comes into vogue, by which comes not vogue, by which conto the steel work, instead of being put on by head of being put on this apparatus should be interviewed, because it is not always convenient to get power to operate the motor for this purpose. The same truck that they had been truck that they had been a for doing this.)

51 Fog horns. - Klaxon.

(This matter is in Mr. Huchison's hands.

52. Submarine bell apparatus.

(This matter is in Mr. Hutchison's hands.

53. Electric time systems.

There are a large number of Electric clocks in use in schools and factories throughout the United States. In these systems, a master old period time, closes the circuit every minute, sending current through the secondary clocks, which by means of electric—segment, operate the heads never clock's heads. All schools and colleges should be canvassed in this matter, as well as other places where such clocks are used. This includes a well as other places where such clocks are used. This includes Electric clock sendents where the interviewed. There are some electric clocks that use magnetos, with no bettery. But they are appensive and are not in as continued.

54. Breeches Bouy life saving apparatus.

(This matter is in Mr.

55. Electric toys of all kinds.

(All manufacturers of toys should be interviewed. The should be interviewed. The should be interviewed. There are not to the said for a short time, and the operation of the toys is not satisfactory. There is a very large market swatting the opiniorieal cell for this purpose).

#### FOR LIGHTING

- 1. Street oars.
  - 2. Interurban cars.
  - 3. Subway cars, emergency lights.

(Refer to OPERATION OF #22).

(Ditto).

(Laws will noon be passed, mosessitating the equipment of all subwey and elevated trains with memoreno lights, operated by storage batteries, so that when the power goes of: The MAGACO THOM 1 girls will remain in the Gar. The MAGACO THOM 1 great the lead to the control of the lead to the law of t

4. Subways.

The law will soon compel the illumination of subways by storage battery lights, or a reserve storage battery in the power stations, to take care of the lights in case the power goes off:

5. Railway train lighting.

(The difference in weight between the Risson Battery and the lead battery will pay for the Edison Battery in a short time. owing to the high cost of tauling on fast passenger trains. Mr. Thompson has this matter in hand).

6. Railway signal lights.

(In Mr. Thompson's Department).

7. Car inspector's Lanterns.

(The small cylindrical cell is excellently adapted for this kind of work, and should be pushed for this).

8. Train orew lanterns.

(The same applies).

9. Locomotive headlights.

The steam turbines universally used for operating the arc light of the headlight of the locomotive is extremely wasteful of steam, and is very unpopular among engine drivers, because of the difficulty of supplying better the steam of the difficulty of better installed on a locomotive or on the tender could do this very satisfactorily.)

10. Electric bouys.

(This matter is in Mr. Hutchison's hands.

11. Automobiles, either in battery alone or in conjunction with dynamo.

(There are a large number of lighting outfits being installed on automobiles. The objection that has been raised to the Edison Battery thus far on such lighting outfits is the difference of potential between the oharge and discharge voltage. This is of no moment however, because when a car is standing still, it does not need the lights as brilliant as when moving. The battery is simply to take care of the lights when the speed of the engine falls below a certain rate of rotation Therefore, the argument is groundless, and the Edison Battery should be used in this work. . Lead Batteries now being installed will soon commence to play out and the Edison Battery will come in on the renewals. This field should the renewals. This f

12. Mining lamps.

(All miners use a lamp. The cylindrical cells can be used for this purpose to great advantage. Large mine owners should be communicated with on this subject. In fact, a complete miner's lamp should be gotten up and sold with Edison Battery).

13. Police lamps.

(All poincess on might duty carry an impaction lamp for impacting looks of doors, etc., these leaps are now operated by dry batteries. Many thousands of the Edison Battery of cylindrical form can be sold for this purpose. A complete the complete of the c

14. Postman's lamps.

Postmen also use the same kind of lanterns that the policemen of lanterns that the policemen use to read the address on letters, inspection of the interior of post boxes, etc. When dark, the Post Orfice Dept. will be taken eare of by Mr. Hutchison as soon as these lamps are ready.

15. Night lamps and clocks.

(The American Electrical Novelty Co. and other make a large number of clocks, which, by pressure of a button, can be read. The small cylindrical cell should replace the dry cell for this purpose).

16. Safety lamps in magazines, submarines, etc.

(In the event of failure of the lights on beart ship, the interior of the magnatue is illuminated by these small sefety lemps, that are already on the market. The Birster should be adapted to solve the same of the large that the la

18. Shops, Offices, etc., after power is off.

(There are many factories, lighted by that out dynamos, which sure at 5 o'clock. The sure of the officers of the toompany desiring to work after dark on the books, etc., they have to use kerosens lamps. A reserve storage battery outfit would be very advantagcous in much work).

19. Emergency lights in theatres.

(If proper pressure is brought to hear all theatres can be compelled to put in such a battery for emergency in case the lights go out by reason of disconnection or discontinuation of the current from the mein, the theatre can be lighted by the storage bettery).

20 Stage ballet and miscellaneous

(There are azumber of ballets staged in whole small clottic lamps are used on the porson of and henore. The option of and henore. The option of this work. When a show is on the road, they cannot always got the small dry batteries for the alectric lamps, but the them and here them charged from the other of the small dry batteries that the small here them charged from time to time, as they may need 11).

21. Country houses.

(There are a large number of isolated plants in use today in country houses. The Edison Battery is best adapted for this work. Isolated plant manufacturers should be worked on this).

22. Yachts.

(The same holds good on yachts).

23. Omnibuses.

(There are quite a large number of gasolene and horse driven buses that must be illuminated inside. The storage battery is coming into extensive use for this purpose. The Edison Battery is best adapted for this use. All gasolene car manufacturers should be interviewed in this matter).

24. Electric lamps used by Submarine divers.

(Submarine diving apparatus manufacturers should be interviewed in this matter).

25. Reserve for light ships and light houses using electric lamps.

(This matter is in Mr. Hutchison's

26. Hotel & care dining tables.

(In many instances the individual lighting of tables in the center of dining rooms is difficult. A small Edison Battery accomplishes this excellently. The Blackstone that In Chicago is so equipped.

## MISCELLANEOUS USES.

- 1. Booster battery on power circuit. (This is the large cell pro
  - position, and work thereon is rather permature yet as to pushing.
- Carrying day or night loads of small plants.

(There are large numbers of plants throughout the country which are now running day and night, having either only a day load or a night load. Edison Storage Battery can be used to great advantage in such mork).

3. Storing power generated by wind-mills.

(There is no reason why power derived from wind-mills should not be used to charge storage batteries for lighting country residences, operation of farm machinery etc.)

4. Storing power generated by tidal motors.

(Various schemes are on foot for using the tides to generate power. As the flow of the tide is intermittent, the power must be stored. The Edison Battery is excellently adapted for this purpose).

5. Storage power generated by wave motors.

(The same holds good).

6. Storing power generated by solar engines.

(Efforts are being made to concentrate the heat from the sun to boil water to operate steam engines to drive dynamos. owing to the uncertainty of the weather, this power must be stored, and Edison Battery is best adapted to this work).

7. Water wheels.

(There are a large number of rivers and streams that cannot be dammed up for ordinary turbine operation, but which are still available for power by the use of large paddle wheels turned by the flow of the water. Power can be stored up in the night-time to augment the dynamo the next day for the operation of electric motors for farm machinery, etc. Some-times this power is not sufficient for the operation of grinding mills, etc. but if augmented by power stored at night, would operate these mills the next day).

8. Reserve power for heavy demands. (This includes many manufacturing enterprises, railway power houses, etc., and is more comprehensively included under the term "Booster Battery" referred to above).

Utilizing and storing power, now going to waste in emptying and filling canal looks.

twhen vessels pass through control to the water must be admit-ted slowly or released slowly, in order that dangerous currents will not be produced, which would tend to cause the vessel to collide with the end of the look, This power is now going to waste. There is no reason why a revers able turbine system should not used so that the water passing into or out of the look can operate the turbine, generate electricity, for storage in Edison Storage Battery. The power derived therefrom could operate the look mechanism as well as furnishing current for lights etc., etc.).

(When vessels pass through canal

10. College laboratories and test stations.

(All colleges and laboratories use storage batteries for purposes to which the ordinary line ourrent is not adapted. These batteries receive very little attention, and in the case of lead batteries, deteriorate through lack of attention. The Edison Battery is the best Battery in existence for this kind of work. All colleges and laboratories should be canvassed in this matter).

11. High potential, small unit

(In all colleges and laboratories. it is necessary to have access to very high direct current voltages. The lead cells now used for this purpose are very small, but deteriorate very rapidly. They get very little use, but are needed quickly when the urgency arises. The one ampere-hour cell is large enough for such purpose, and thousands of them can be sold to meet this demand).

12. Watt motor Testing.

(The My. Edison Cos meter men use Two Edison Q4 Cells for Testing House MEters. Cummir about 200 ampens for a few seconds.)

### Edison General File Series 1911. Battery, Storage - Country House Lighting - General (E-11-09)

This folder contains correspondence and other documents relating to the commercial and technical development of Edison's alkaline storage battery. Most of the letters are responses to an advertisement placed by Edison in *Iron Age* and numerous newspapers soliciting investors and promoters for his "Country House Lighting System"—a plant to illuminate rural homes located beyond gas and electric mains. Included is a compilation of estimated costs and service plans, along with correspondence concerning a successful scheme for lighting houses with storage batteries in Norfolk, Virginia. Other items, including a note from Charles Edison, discuss plans to outfit a "Show House" near Edison's home in Llewellyn Park, New Jersey. The selected letters are primarily from prospective investors who had previous connections with Edison. Samples of Edison's standard replies and marginalia have also been included.

Among the correspondents are Robert Colwell, an acquaintance of Edison's former business associate Robert H. Thompson; Charles H. Mixer, who worked with Edison as a telegrapher in Louisville during the 1860s; longtime associate Comelius E. Nestor, president of the Nestor Electric Vehlade Co.; Affred J. Voyer, an office boy at 66 Broadway in New York City during the late 1870s; and Will C. Tumer, co-founding secretary and manager of the Edison Electric Light Co. of Columbus, Ohio. Also included is a letter by electrical engineer George A. Mullen containing reminiscences about Edison, Frank J. Sprague, and Samuel Insull at the Pearl Street central station.

Less than 10 percent of the documents have been selected. The items not selected consist primarily of letters from prospective investors and duplicate material, including a typed copy of Edison's enumerated "Uses for Edison Battery" from October 1911.

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the use of the deposit que to a small Lown as working Capital-Aprils up posters He says Even the farmers annousing Chal on a centain day they have lights in he will demionserate all the rooms out Turn them out of rows Electric house Light they we not using by the & But at Days to one - Holl = admista Change losts with Tree also suido cercio to best people - source formes de l'écle seven I worth - of course bells are formad of he chair the light the large hacrees use reveral dellars conto stell the costs det a worth - The way con handle he operates is to

also lately he has ago he geturedit to aucomobile Lis

City Court of New York; Justices Chambris City Hall. MOON 18. 1911 Mu Thomas WEdison Dear Sir middle aged man do with the article advertised who has push hearins and ability withink the oabital: I can refer to Prof. Haminer as a hay hood and life long friend Your Resply. Meddorn Van Myck 135 646SV My

October: 29th,1911.

207 30 .911

Dear Sir:-

Referring to your newspaper advertisement of to-day I beg to say that I feel inclined to share in some legitimate, sound and growing enterprise. and, after thorough examination, to invest the necessary amount.

I am a foreigner, German, Christian, and have a thorough commercial training and wide experience. I must add, however, that = inasmuch as I have lived in this country for only four years = I do speak English pretty well and am able to read even difficult correspondenc, technical treatises. etc., while I do not control the language to such an extent as to be competent to do outside work. etc.

I am interested in a very important enterprise which, however, leaves my time perfectly free, and I am anxious to make use of this time. I am in possession of first class hanks and private references and shall be glad to ambmit same

In case you should be interested in my offer, I would ask you to gi me as detailed an account as possible of the most important points of your proposition which I shall, of course, treat as strictly confidential, S o long as I am unable to judge whether the nature of your project will be accentable to me. I do not wish to ofcupy either my time or yours; on the other hand, if your information should satisfy me, I shall gladly arrange for a further oral interview.

Kindly send your first letter to the address indicated below! Looking Yours truly

forward with interest to your reply, I am,

Mr H. H. B Wox 57 Poststation W West Sord Street New York.

H. W.

AGENTS FOR BERGER'S METAL LUMBER

CONCRETE AND TERRA COTTA

## Lincoln Monolithic Company

CONTRACTORS AND BUILDERS

367 FULTON STREET

Thomas a. Edison

I have been in the Real Estate + Bunding Business for 20 years. Our a thorough Business man + Salaman. am 45 years old, have some money and am well Connected can formed Best of References.

I Know all about Concrete and Bueding Construction forms Electric achiety and an a Huster Knidly let me Lave. farticular of your.

profosition rolling yourse

Louis Theory

E. D. KAHN nednessay 5 Oct 30/11 That a Edison Eng Dearti conducted a street on a family large orange and superior for and the street and the street and the street and the flesh and the form on as to finite features have go aform one as to finite features. EO.112

nov 1s

Oct. 30th, 1911.

Thomas A. Edison, Edison Labratory Orange N. J.

Dear Sir:- My attention has been called to your "Ad" in yesterday's paper, and will say that I am interested therein,

I fail to clearly understand what you may wish me to state in the way of qualifications, but believe I can easily assure you as to reliability and financial responsibility at the proper time and place. Will say further that I am at present the owner of two mechanical business lines connected with both the relired and automobile industries which are not only successful, but well known throughout the country and I dont think you would find my bank standing in the least unsatisfactory. At the present time I have some little capital that is idle and the name of Edison naturally is of interest to would be investors as the usual questions of reliability and good faith should be entirely eliminated thereby.

If an interview is necessary to get in touch with you, will try to arrange same to suit your convenience but having just returned from a business trip abroad am unusually busy and would greatly appreciate further detai from you regarding your proposition. In closing will say that I am not only fully prepared but very willing to show my good faith in what you have to offer if I can see plausible signs of results.

D. (). / / feller

New York City.

norman 30 New York Oct, 3. 1910 Me Shomas a Edison Change K. J. Dear Tri In answer to the advertisement in of yesterday -" Au ou fifty year of age, and have been in action business in this city for over thirty Jeans, your very (respectfully Shea, Franklin 252 W. 85# St. New York City TELEPHONE-LONG DISTANCE 5232 CORTLANDT ESTABLISHED JUNE 26, 1889

REGISTERED CABLE ADDRESS WILLSETEE NEWYORK

### BONDS AND STOCKS

IMPORTANT COMMITMENTS EXECUTED SUCCESSFULLY THIRTY-ONE NASSAU STREE

CORRESPONDENCE INVITED REGARDING INVESTMENTS

8.0.10

Oot. 31st. 1911.

Hr. Thomas A. Edison, Edison Laboratory,

Dear Sir:-

Your advertisement in the "New York Herald" of Sunday interests
me. Will you kindly let me know particulars? My record is enclosed herewith.

Sincerely and very truly,

the o Tumer

Dictated by Mr. Turner to E. L. B.

### [ATTACHMENT/ENCLOSURE]

## A PERSONAL MATTER

For those who have not done business with me and do not know me I submit herewith MY RECORD

Was have to France, Gaussen Co., Mich., Asse M. Was andreaded England Andre Mich. 1995-1995-1995. We are advanced from Andre Mich. 1995-1995-1995. We are advanced from Company of Statistics of Control of Contr

MEMBER OF Alumni Asso, of Univ. of Mich. (Asso Arbor). American Act demv tiktet Autors). Nicolarus Society of New York. National Press Class. Autovack Press Class.

Noottish Rise. 37: University of Michigan Club of New York. AS TO MY PERSONAL INTEGRITY: (References without permission).

Wall Nives 
The State of the St

Henry Revealth, President Greaf Hastere Telephone
On, in Charlet Street,
Henry D., Sickels, Real Padaie, 58 Riverside Drive.
Walter C., Stokes & Co., Mambers N. V. Stock Exchange, 68 Hondway.
Townsood, Dix & Yalls, Certified Public Accessorants,

Casa. 11. Van Stofel, Manuar Construction of Cache Cache Casa. A Sino, Printers, 82 Beekme Street. Cach. V. S. Sino, Printers, 82 Beekme Street. Cache Cache

As I wan networks to me to the executive of any and activated to me to the executive of the project, and the order will either to executed promptly or the cash retreased. It constructs, the me to the contract of the contra

M.C.T.

# Edison Is Deluged With Answers to

With Answers to Business Chance Ad State S

ROBERT COLVELL, 10 HROAD ST.

RAILWAY EQUIPMENT. CAR TRUSTS.

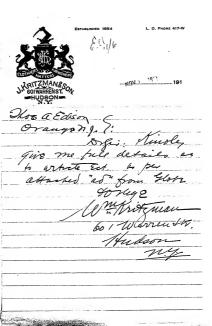
NEW YORK, Och 3//// 100

Mr Mas A Educar Edicin Saboratory Ovang Inf

Mir Sir Referring to goon adventisement in lash Study of the Study Study Study of the general and would to the tendent study of the tendent study further fathering open any further fathering open on any further fathering open on my see appleased to ferrical men stating to the Mattheway of the M

Hany years expensation Itany add for Many years sever agreement with the late Retard of theoretical with others of and award of the both beauties on Joseph Militing. Sam also once arguments with The Stray & Norming with what are activated with The Renges in Consume and whom I as present hope in to myself Salesting a preference of your country of the series of the

Tenflorty Popol Course



#### [ATTACHMENT/ENCLOSURE]

EMPTA WARTED FOR AN ENGINEER TO THE WARTED FOR AN ENGINEER TO THE WARTED FOR A CHIEF TO THE WART

FRANK H. COYNE 60 STATE STREET BOSTON, MASS. Telephone 2787 Fort Hill

November 1, 1911.

Mr. Thomas A. Edison, Edison Laboratory, Orange, N. J.

Dear Sir:-

Your advertisement in the Sunday paper, stating that you had an article which a limited number of saidate aged men with some business experience and a capital of five to seven thousand dollars, etc., has been brought to my attention, and in reply 1 beg to state that I graduated as a mechanical engineer at the one institute paper and also in operating several mines throughout the United States and Mexico.

I have also operated lighting properties and have had considerable selling experience; namely, with the Fraser & Chalmers Co., now the Allis-Chalmers Corp'n, and have but recently taken the exclusive agency in the states of Hassachusetts and khode feland for the Detroit Combination Tool, menufactured by Harbor and Part of the Chalmers of the Chalme

The last salaried position I had was with the Hollingsworth & Vose Co., menufacturers of rope manilla paper in this city, and they paid me 36,000 a year.

I would be very pleased to hear from you with particulars of your proposition and once knowing what it is I can judge whether I am suited by experience to headle it to advantage and can outline to you more fully my qualifications.

Trusting to be favored with a reply, I am

Yours very truly

THC /

age 38.

Hov a. Edison Orange Mif Responding to Globe advertisement, I beg to ask for details of respective Having for a number of years represented several Western specialty factories in this city, I have thorough lineness experiences and a midely acq extended acquaintance with solling. Department and Export Unix ceptionable references at your pequest, or Bradstreet agency report for preliminary awaiting your valued raply, proposes. I ramain, Yours Very Kespectfully elino Passaucz

ALFRED J. VOYER

---

CORRESPONDENT OF FREDERICK AS IMMONDS A CONSOLIOATED SOME EXCHA20 0 25 BEASTER STREET

Mr. Thomas A. Edison,

by doar ir. Edison: You will recall in the writer the "office boy" in the top floor of 766 Broadway, in the early You, quring the development of the automatic system of telegraphy. The "office boy" is now 52 years of large balo, hearty and vigorous.

I renewed my significance with you on the porchof the United States hatel a during the summer of 1888.

I have read with some interest, the attached article. If it is not an exaggeration, I would like to avail myself of its privileges.

I have been sngaged in the Stock brokerage business for the past 18 years, and would welcome any

I trust you will recall me as readily as "Jack" wright, E.H. Johnson, and even Mr. J.C Reiff, just previous to his death . ALFRED J. VOYER
STOCKS, BONDS, LOCAL SECURITIES

OTH TRIBURG ON 485 ALBANY, N. V. 30 & 61 STATE STREET

CORRESPONDENT OF
FREDERICK SIMMONDS

CORRESPONDENT OF PREDERICK SIMMONDS CONSOLINATED STOCK EXCHANGE OF 4. 26 & 26 BLAVER STREET NEW YORK.

Perhaps you will also recall our great effort to beat the W.H. on the President's message, with the iodine of potassium paper, ( purchased by me for you so often, by the pound).

During the past thirty five years, I have been actively connected with the telegraph, telephone and electric railway business.

If the proposition involves a knowledge of electricity, I would feel especially qualified .

Trusting to hear from you, I am,

Yours truly, Alfred Noyer

Albany W.Y.Nov. 2nd. 1911.

Referring to my recent talk with you in

regard to the "Lighting of Private Houses beyond Gas and Electric Mains with The Edison Storage Battery".

I have satisfied myself that the Independent Electric Light Co's. cover the field within a madius of ten miles of Madison, N. J. and that there are not a possible IOO customers.

They differ from the Municipal Plants in that they will supply elecricity outside Villiage Limits.

So it appears impossible for me to follow this line and live in Madison, should anything develop in New York City I would like the opportunity to look into it.

In any case my trip to Orange was no loss as it was a great pleasure to meet you.

Very truly,

S. g. Palm

## [ATTACHMENT/ENCLOSURE]

#### LIGHTING PRIVATE HOUSES BEYOND THE GAS & ELECTRIC MAINS

#### MEDIUM HOUSE

Deposit required to be returned when service is given up.	\$81.00
RENT & SUPPLIES	1
Runt \$5.00 per year per cell Charging 2-1/2 times per month 75f per charge	15,00 6.00
One 5 OF in Eitchen 1 hour one 10 OF Dining 1 " Fro 10 OF Sitting room 2½ " Four 3 OF Bedrooms ½ "	
LARGER HOUSE	
6 A-8 cells Deposit	\$150.00
COSTS	
Rent \$10,00 per cell	45.00 15.00
One 5 OP in Kitchen 1 Hour Two 10 OP " Diming 1 " Five 10 OP " Sitting room 3 1 " Four 3 OP " Selrooms 1 "	

#### [ATTACHMENT/ENCLOSURE]

#### CHARGING

6 A-4 --V.

Charging Voltage 11 Volta, 30 amp. 7 1/2 hours input 2 1/2 KWH. at 4¢ KWH. 10¢, 2 1/2 charges sold at 76¢ per charge is \$1.87 per month, deducting cost of current leaves gross profit of \$1.62 per month, allowing 40% on the <u>gross</u> profit for general expense, rent, attendance, and repairs gives net profit of 97 cents per battery per month.

200 Customer 2 1/2 deliveries per month gives 19 deliveries per day To charge these requires about 50 KWH daily

If charged daily for 7 1/2 hours requires engine and dynamo of about 10 Horse power.

Current could be made with oil, gas or gasolene Engine cheaper than 4 cents per KWH.

The profit to the renter on above 200 customers would be \$194.00 per month.

If only suburban work is done then a one horse delivery wagon could make deliveries.

The average cost of this class of work as taken from the books of a dozon concerns is \$100,00 per month; if 19 deliveries daily could be made the receipts would be at 50¢ per delivery a picking up \$9.50; if only 10 per day, receipts would be \$5.00, both of which would give a profit.

Culticollibus "Edisom Subbook"

From the Laboratory

Thomas A. Edison,

Grange/NJ; Fovember 6th, 1911.

Form A

Mr. Julius Nassauer, 475 Broadway, New York City.

Dear Sir:

Your reply to my advertisement has been received and its contents noted. I am preparing a statement of the proposition under consideration, and in a few days shall take pleasure in sending same to you, at which time we can arrange for a personal interview if. deemed desirable.

Yours truly,

JULIUS NASSAUER, Instructor October 475 BROADEAN, N. M. PRIONE 4960 SPRING
LEAT for Refuring to Your above favor, I beg to state my regard, that me forther details have so far

Newark, N. J., 1/1/1/1
Weako anfi

Orange . Or. New Mr. Edwin

Hereith endired please Two enclosures - " Mays for Edin Battery + Lighting

private homes - I retire there keener since

my talk with you find that there is no money it for me wender present arrangement the for Mr Edison - than

Very truly Jours O.K. Eguspord.

You are very much reestaken that there is no money in The General = you should Come again aget better informed The highling of large country estates

Nov. 7th, 1911

46.

Nr. Howard D. Allen. o/o Albert Tool Co. 221 North 23rd St., Philadelphia, Pa.

Dear Sir:-

Your favor of the lat instant was received. In reply I would say that the proposition under consideration involves the exploitation of my storage battery for certain special uses by high class men who would give their time to the matter exclusively, working with their own capital and getting around their territory in person. Hence, you will see it could not be handled with other things by a concern such as you own.

Yours truly,

PRIORE MANILTON 1438

GENERAL SALES AGENT

BROOKLYN. N. Y. 11/10/11

Mr. Thomas A. Edison,

The Edison Laboratories,
Orange, N. J.

Dear Sir: --

I am in receipt of your favor of the 9th instant, and as requested, will call upon you about eleven thirty a.m. on Honday the 12th.

Very truly yours,

 $_{\mathrm{RJF}}/\mathrm{F}$ 

nov. 10, 1911 R. F. Haffenreffer, Jr Hotel Belmont, 42° Street + 4 . auc new-york Can see you at the oclock tomorrow morning J. a. Edison

NIGHT LETTER

Form 2280 B

## THE WESTERN UNION TELEGRAPH COMPANY

25,000 OFFICES IN AMERICA

CABLE SERVICE TO ALL THE WORLD

CAB

RECEIVED AT

November 11 -11

8 MY DS 25 Paid night letter HI New York N.Y. Nov 10-11 Thomas A Edison

Orange New Jersey.

Will leave New York ten minutes past nine Saturday morning arriving Orange nine fifty nine therefore will probably arrive at your Laboratory shortly after ten colock.

R F Haffenreffer. 1:31am

THE REPORT OF THE PARTY OF THE

t Farms and Country Proph Editor's Latest Investions W EDISON STORAGE Y. We Present Them From thy o Scientific System of GEORGE ALLEN MULLEN & CO.
ELECTRICAL ENGINEERS

(EXTABLISHED 1000, AT 100 EROADWAY, HEW YORK)
OUR SPECIALTIES: LIGHT AND LIGHTNING

This is the only System of Light sing Protection which is recognises by the Insurence Companies. Or 2000 Motzel and Old Line Companies great a reduction of 20 per cent where our system is used.

THES, EIGHT AND IN-

Swedesboro, N. J. Hov. 13, ..... 191

Mr. Thomas A. Edison/ Orange, N.J. My dear Mr. Edison:- Was be on our dolor

Referring to our conversation of 31st ult.

RENTAL PROPOSITION:

This amazing proposal struck me so forcibly that we have rented a small factory, ideally located at Woodbury, N.J., and will soon be ready to try out your proposition. To me the possibilities are simply boundless. We are well equipped to handle it in connection with the LOW VOLTAGE EDISON STORAGE BATTENY FLANTS, which we have been working on for some little time and have extensively advertised. We have set up one of these isolated plants which we will have on exhibit for our numerous prospective ountoners to see, just as soon as I can get to Orange and secure the hattery(s) which may be tomorrow or Wednesday, when I hope to have an opportunity to see you.

NEW JERSEY STATE BOARD OF AGRICULTURE:

This meets in Swedesboro, N.J., lith end 16th of this month. You will perhaps recall that I mentioned to you the fact that lightning rod men were using your name to swindle the farmers. For instance: John Stutt of Bridgeton, N.J., is showing a letter from you which he claims is your endorsement of the old twisted lightning rod. Another, one George Pittard off

THE MET HAVE NO CONNECTION WITH ANY LIGHTNING ROO CONCERN WHATSOCKER "65

## GEORGE ALLEN MULLEN & CO.

erties with Edison's Latest in THE NEW EDISON STO BATTERY, We Protect Th Lightning by a Scientific S Conductors.

(ESTABLISHED 1996, AT 160 SHOADWAY, NEW YORK)

This is the only System of Lighting Protection which is recognized by the insurance Companies. Over 000 Mutual and Old Line Componse great a reduction of 20 per centchare our system is used.

- 2 -

Lewes, Del., claims he went to Edison/school for four years to be taught your system of lightning rods. When they invited me to give them a talk on Lightning Protection I suggested they communicate with you during the convention, end that you would doubtless reply giving them the desired information. Since seeing you I keve informed them that you would, and would make your position regarding the matter perfactly plein to them. I have thought this would be an excellent time to announce your restal proposition.

REMINISCENT: Last Sundey I was looking over your biography and ran acroes "His Good Gueeces" and "Fun Loving" and I wondered if you recalled the following: Mr. X.Y.Z. \_\_\_\_\_ so called because he thought the slighteet duty must be figured out end proven by calculus before being attempted, was an electrician in historic old Pearl St. The safety-catches in the street boxes were in the meantime getting loose in epite of calculus. The first feeter to go threw its load on the next, and it having as much as it could carry also went. There were six winks and the district was in darkness. The only serious interruption. I believe, except during the first fire. You came down with Meesrs. Johneton, Bergmann and Sprague. You looked over the map of the district, gave Sprague some figuring to do. but was not satisfied with hie results. Sprague went over his figures but insisted he was right. You again questioned their correctness, when Chinnock started in to do some "guessing" and he guessed that when

WE HAVE NO CONNECTION WITH ANY LIGHTNING ROD CONCERN WHATEDEV

#### his is the only System of Lightg Pretection which is recognised the Insurence Companies. Over Mutual and Old Lies Compancents and adultor of 20 mer cent.

## GEORGE ALLEN MULLEN & CO. ELECTRICAL ENGINEERS

UR SPECIALTIES: LIGHT AND LIGHTNING

Ve Light Farms and Country Propries with Edison's Latest levention HE NEW EDISON STORAGE ATTERY. We Protect it From Lightning by a Scientific System of Sendertors.

7 n

....

it came to mathematics Sprague knew as much as Edison, so he (Chinnock) bet you dinners for the crowd that Sprague was correct. For the moment you seemed satisfied with Sprague'e figures much to Chinnook's elation, but to his coneternation two minutes after you again challenged Sprague's figures and Sprague gave in your guess" was right and Chinnook bought the dinners. Again one night, it was nearer morning, you came down with Mr. Insull. You went in the test room, Mr. Insull found a soft board on the top of the lamp bim in the regulator room, end epresding out some newspapers he was: soon sleeping soundly. You will recall that in this regulator room there were two doors, one led to the office and street, the other to a lavatory, which was pleced in a right angle of the smoke-etack. The door which led to the office and etreet was made of tongued and grooved material, eeme as the partition, end to a stranger thie door would be invisible. When you came into regulator room - about 2 or 3 o'clook - you awoke Mr. Insull and he, rubbing hie eyee, groped after you. Suddenly you opened the lavatory door but quickly went out the invisible one. Mr. Insull fell overthe hopper end jammed his silk hat against the emoke-eteck. His remarks were not heard by you for by this time you were on the etreet.

Torge Allen Mullen

Edvin Zabora Dear Tirletter of Hov. 1st. answering mine in reference to your "ad" in Will I auswere I same acknowledging recent and stating that ould be beleased to recen is letter on Hor same text as of Wor. 1st. Het hearing from you since - I thought it best - to write you - not being sure whither I had been overlooked - or that you had not as yet completed your Walerston Is I am liable to be in hew York in a eur dans I thought - hunded you were ready - it would be a go to see ym-#11 Bruleto

Hoy. 17th, 1911

Mr: Orlando Thayer, 42 Broadway, New York City.

Dear Sir:-

Your favor of the 14th inst. has been received, and I am much pleased to learn that you have already interested a gentleman in the Country House Lighting System.

I would say in reply to your inquiry that the same electric plant can be used for heating small electric stores, flatirons, coffee percolaters, electric teasters, and all similar heating appliances. In fact, it can be used for all purposes for which electric current, obtained from the city wires, is used in the various appliances that are now being made for operation on electric currents.

I am arranging various sizes of complete plants for the electric lighting of country houses. If the purchaser also wants to use the current for the above named purposes in addition to lighting, the next size of plant would enswer his requirements. If he also desired to charge his electric automobile from the same source, it might be necessary to have a still larger plant. Of course, it would all depend on the size of the original plant installed.

Hodorn electric vehicles, with Edison Storage Battery, are capable of making between 100 and 200 miles on a charge. This matter of mileage, however, is one that should be thoroughly understood in purchasing a vehicle, for the reason that one person may get a larger mileage than another person because of more expert handling of the machine.

(2)

I have been so extremely busy of late that the preparation of printed matter has been somewhat delayed. It has been done under my own close, personal supervision, and the first booklet on this subject is now rendy for the printer. I hope it will be out next week. I shall send you a copy of it as soon as it is ready. Then you will be possessed of further information, and you can come out to see me at any time if there are any Sthbrechquiries you want to make to enable you to close the doal you have on hand.

Yours very truly,

SALV

ALPHA DELTA PHI CLUB 136 WEST 44T STREET NEW YORK

Nor 21, 1911 May 22 191

Dear Edina. We will call on

you tomorrow about one deleck.

Thank N. Mixer

#### RAILWAY EQUIPMENT. CAR TRUSTS.

ROBERT COLWELL

Mr little A The adore coof Edicen Laborating mange in &

Acar Pin

fring to commy to day to the Mr Filend but And to ack buch divide from room
for another oppositionents Very Total, Com Ordentaluelly

Ruchmond 1ª Wor 26"1911.

Mr Thomas a Edwar,

Bear dir:

Belatin to our
recent correspondence - Caunot you
uses give we some idea of the
perposition you have to offer, so I
may know whether or not it appeals
to what I who were like to do?

As I worst you in my letter of Oat 31. I am present sed of business, but work to get into action infly you have mothing to offer or your proposition happen and to affect to me, why then I have some other

which I wish to comider. I have lately been reading an interesting account of your places for the use of the morning protine machine in the education of chiedren - If an a final test by which to judge any plan of custom should some the question, Does it west a pleasurable excite-. ment in the pupils? are the pupils pleased and happy while learning their leavens? Then in the remanular of the street, your morning pictures ought to fine the beer. your Truly, Emmel Dicking

Mr. Emmet Dickinson, Richmond, Va.

Dear Sir:-

Your favor of the 26th inst. has been received, and in reply I beg to say that my time has been so greatly occupied with a wast number of matters that the preparation of the statement of my proposition has been delayed more than was expected. The matter is now in the printer's hands, however, and a copy will be mailed to you within a few days,

The proposition covers a plan of electric lighting for country estates by separate plants, which include the use of my storage battery. The field is a very large one and the business is attractive, requiring no technical knowledge on the part of the Agent, and there is no undue risk of capital. This is only one of the several things I am bringing out.

In regard to the educational motion pictures,
I am now preparing to put the plan into practice. There is
much preliminary work to be done, but undoubtedly much progress
will be made this winter towards putting things into practical
shape. I have not the slightest, that that it will be so effectual that it will be difficult to keep the children away
from school.

Yours very truly,

(NO Calephore

outch November 29, 1911.

Mr. Edison,-

In order that the plumbing may be kept from freezing, and the house fairly comfortable for Gorbett and McGinnig to work in, it will be necessary to order some coal sent up. If you will 0. K. this, I will have jt done.

We also ought to have a party line telehone in that house. Would save a great deal of time. This will cost only \$2.50 per month.

These I will need a man to go up there and clean the in the caller. The man there at the dirty, especially in the caller. The man there are the caller at the caller at the caller at the man the caller at the low, and to now working in the Carpenter Shop of the Storage Battery Factory, in the Carpenter Shop of the Storage Battery Factory, in aid him \$15.00 a week. If you will o. K. as you did in convergation on the train, I will take this man many from the Battery Works, and send that up to the house,

I can't do very much in the way of cleaning up, etc., until the caretaker now in nosessaion moves out on December first. But I want to get ready to go ahead at once.

HUTCH A

SATTLINY STORAGE - House

The or the mine of several y week of several s

About that house lighting catalogue;

Until we have made some experiments in the leaf when would be wise to undertake to write an authentic out in a large on the subject. The matter of regulation of the voltage has got to be worked out astisfactorily because the subject. The matter of regulation of the voltage has got to be worked out astisfactorily because the subject of the voltage has got to be worked out astisfactorily because the subject of the voltage has got to be worked out astisfactorily because the voltage has got to be worked out astisfactorily because the voltage has got to be worked out astisfactorily because the voltage has got to be worked out astisfactorily because the voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be a voltage has got to be worked to be worked to be a voltage has got to be worked to be worke

right into this automobile lighting proposition? The market is there waiting for us, and there is no thing when the market is there waiting for us, and there is no thing when the de this, because I want to each the ales on batteries run up now, during the dull season. When deel veries commence to be taken, on automobiles for 1912, when the commence to be taken, on automobiles for 1912, the commence to be taken, on automobiles for 1912, the commence to be taken, on automobiles for 1912, the commence of these months. In the intervening month or two or three months. In the intervening month or two or three months. In the intervening month or two or three months. In the intervening month or two or three months. In the intervening month or two or three months. In the intervening month or two or three months.

I am pushing the house matter as rapidly as possible, but cannot make much headway until we get possession on December first. Meanwhite, please let me get busy on the automobile end.

12 Francis av., Greenwood Mass.

Mv. Thomas as, Edison Oranges. N. J.

Acm Si:-

briefly in refley to de letter of wine referring to all advertisement which you caused to

by published in a Boston paper.

as no further details have come to hand - this thing the purport of your letter - I then to enquie if the matter referred to is atter in freparation.

I have beneral other matter fending but should very much appreciate your finel word in I shis posteriou Exfer studing a definite decision on other lines. Very huly yours.

Eugene N. Brigge

December 2, 191 1.

Mr. Miller,-

I am enclosing herewith, memorandum which I sent Mr. Rdison, asking that he O. K. the various paragraphs. As he did not O. K. No. 2, I suppose he means that the rest of them are O. K.

Please have sent up to the house, about three tons of furnace coal, and one ton of range. coal. I suppose you know where the house is. I do not know the humber of the street, but the copy of the lease which Mr. Raison signed, and which you, no doubt, have, will tell it.

I have already received the cigars . for (Blesday, December fifth.

M. R. HUTCHISON.

House Lighting

CablorAddress "Edison; NewYork "

Thomas A. Edison, to go

Grange/NJ: #1 Bookset

Dic 8/11 on House

Letting

Dear Sir:-

Referring to the recent advertisement for men with a small capital, etc., I wish to say that I have had such an unexpected number of answers thereto that I have been puzzled as to what to do. It was my original intention to have each of the writers come over to the Laboratory to see me, but owing to the number of replies coming from all parts of the country, this would be impossible.

One of my reasons for inserting the advertisement was to get in touch with a class of men with small capital, to whom I could offer opportunities for merchandising various articles which are constantly being brought out in our Laboratory and Works.

At the present moment I have ready one article which opens a wide field. During the winter I expect to have another article, and in the summer two more. All of these devices are of utility and merit and as fast as they are perfected and ready to introduce, I shall take occasion of mailing you all the printed matter which we may bring out in relation to same. This will permit you to judge whether or not it is a

desirable project for you to engage in.

The business I refer to which is <u>now</u> ready is the Electric Lighting of Country Estates lying beyond the lines of the Lighting Companies in towns and cities.

This uncocupied territory is very great and the present systems of korosene, gasoline or acetylene are undesirable.

The invention and introduction of the high economy Tungsten lamp, in combination with the new storage battery brought out by me, has reduced the cost of electric lighting for country residences so much that a given house plant to produce the required lighting, formerly costing \$1600.00, can now be furnished for \$800.00.

I enclose a small descriptive circular which will give you some idea of this kind of buciness, including costs.

If you wish for further printed matter in this direction, or if you desire to keep posted as to my future products of our factories, we will be happy to have them mailed to you.

Yours truly,

mswirtoro" Trom the Laboratory Thomas A. Edison; Grange, N.J.

Form A

Dec 12.1911

Dear Sir:-

Your favor in regard to my statement covering the subject of house lighting plants has been received.

In reply I bog to say that I have rented a large residence near by and am having it furnished and equipped with one of the complete plants for demonstration purposes. This will be ready in the near future, and then I will send you word and you can come over and see it if you wish. You will be kept posted as to this and other products of my Laboratory.

In the meantime, the figuring out of the territory is receiving careful attention, and by the time the demonstrat-ing plant is in full operation, I expect to be in position to allot specific territory to those who then desire to take up the business. We can then consider all the details of arrange-, ments to be made as to material, shipments, payments, etc. think it will be best to defer arranging for a personal interview or the making of any definite agreement by correspondence until then.

Yours wery truly.

Dear Hatch;

WE sell nothing

How - - Lighting

I am under the impression that there is a clause in the property restrictions of Llewellyn Park to the effect that no buildings in it are to be used for commercial purposes. This would run counter to your plan of the house lighting proposition. It would be humiliating to Mr. Edison and to the family as a whole to have a cull down from the neighbors, so I suggest that you look into the matter before actual work has gone very far.

> Hopping that you are feeling as fit as ever, I am, Vory sincerely, Charles Edisons

Dec. 12/11

Mr. N. C. Cornell, 52 Broadway, New York City,

Dear Sir:-

Your favor of the 3rd inst. came duly to hand. Undoubtedly you subsequently received the booklet and letter which I sent you. If you did not, please let me know and I will send duplicate.

In regard to the small electric delivery wagon, I beg to say that I am not quite ready to exploit this. The \$\frac{\psi}{2}\$ experimental wagon is still running on the test which I outlined to you when you were here. When that test is finished I shall complete \$\frac{\psi}{2}\$ and then put it through an exhaustive series of tests, after which, I believe, we shall be able to comsider the commercial type. This, however, will take some time, and we shall not be ready to talk business until sometime in the coming year.

In regard to the house lighting system, I am having a house furnished and equipped with a complete demonstrating plant, which I expect will be ready in the near future. If you are interested in this, I will advise you later and you can come over and see it. If then you wish to go into (8)

the house lighting proposition, we can them talk about territory, terms, etc.

Yours very truly.

TAE/ES

M.C.C.

FRANK H. COYNE 50 STATE STREET BOSTON, MASS. Telephone 2787 Fort Hill

December 13, 1911.

Mr. Thomas A. Edison,

Orange, N. J.

Dear Sir:-

I am in receipt of your favor of Dec. 12th and will await further notification from you of the equipment of your demonstrating plant. I would be pleased to go to Grange, N. J., and inspect same when you advise me that you are ready for such inspection.

I am

Yours very truly.

fhc/m

Cement House DEC 1 3 1911 Lacran Lutch - see we about power steel 60x full dope downlong will it take for that Calalogue writer to Ga Educated



I have received a letter from Hahne and Company of Newark, as follows:

"As I understand you are shout to give a practical demonstration of the different electrical appliances for modern house-keeping, and incidentally to have a furnished home in Llewellyn Park, we would be pleased to co-operate learning you the complete outfit of furniture, if agreeable to you.

#### Respectfully,

Hahne and Co.
By Albert J. Hahne.

I am writing Mr. Hahne that I will be very glad indeed to talk the matter over with him, during the sarly part of next week. I am suggesting that he come over himself to look over the house, and decide on how it should be decorated. I think it will be very much better to have the house fixed up nicely, than it would to take people and the company house. It will be a good and for Hahne also.

M. R. HERHISON.

Dec. 20th, 1911

Mr. M. R. Hutchison;

The progress made in the wiring of "Show House" since yesterday is as follows:

All openings on top floor are cut and reedy to pull in the wires, with 2 excoptions of the upper landing of stairs and the newall post on stairs.

On the lower floor, the wires are in place for the dining room, parlor center fixtures, side brackets in the reception room, also the switch loop from cabinet in the Foyer hall to control parlor center chandelier, has been run.

Mr. Clifton and wife, owners of the house, were out and I pointed to them the several repairs enumerated in letter of December let, sent to the real estate agent. They said they had not been advised from that source, but would take the matter up at once. A duplicate letter of that sent to Hamilton & Son, agents, was forwarded to Mr. Clifton at \$132 Nassau St., on tonight's mail.

Yours very truly,

H. A. Correst

Mildring Tor four information

Than requisited adaily report.

Ara you dill open for a pecaposition for introducing wentions.

# Edison General File Series 1911. Battery, Storage - Country House Lighting - Windmill (E-11-10)

This folder contains correspondence and other documents relating to the technical and commercial development of Edison's alkaline storage battery. The material consists primarily of correspondence with windmill manufacturers from whom Edison sought product information in the hope of using windmills "for supplying electric current for fram houses and other isolated buildings through the medium of my improved Storage Battery."

Approximately 30 percent of the documents have been selected. The items not selected include printed information, letters from manufacturers unable to satisfy Edison's request for information, and multiple copies of his letter of inquiry.

. Wendmill.

Bished, Aris July 9-31.

Thomas, A. Mison,

mar sin 14 hours they come of the

Bultimore, in the Page Machine Co, which I believe would bear carefull and argent investigation.

this invention evereenes all crunk motion, and in my judgment should be the

ideal for wind-edils.

Not knowing just what advancement has been made in the storage system; but the

I cally not you once in the big town, and that was in 87, and latterly had a

٠,

urs Truly, and liberies a Backeys

11 8-1 .00

Miles and Miles Series

Gillestitus Edison Spillock "

Trom the Laboratory

Thomas A: Edison,

Grange, NJ: 0stober 12th, 1911.

mr mendements

McDaniel & Son, Litchfield, Ill.

Dear Sirs:

I am working out a method of utilizing the windull 1 for eupplying electric current for farm houses and other isolated buildings through the medium of my improved Storage Battery, and shall be glad to receive your catalog. If you can also conveniently send me blue-prints of details, they will be of assistance; to me.

Yours very truly,

Thomas A. Edison

per mou

Gentlemen; as we are not making a geared will we do not believe that we have any thing that would be of any benifit to you, all the mills we are making are for pumping and have a verticle atroke, thanking you for the inquiry, and if you do succeed in getting up a plant of this kind; a would like to hear from you as there would be a big field for this kind of machine in the territory we are working.

Modaviel & Son

B. S. we amels

Oot. 13th, 1911

Messrs. Fairbanks, Morse & Co., 481 Wabash Avo., Chicago, Ill.

Dear Sirs :-

I am working out a method of utilizing the windmill for supplying electric current for farm houses and other isolated buildings through the medium of my improved Storage Battery, and shall be glad to receive your catalog. If you can also conveniently send no blue-prints of details, they will be of assistance to me.

In studying the subject of windmills in general I have been able to find but little literature treating of it. Perhaps you can refer me to some books that you consider worth while. If so, and you will kindly send me the titles and nemes of publishers, I shall be obliged.

Yours very truly.



### WOODS & CO.

59 PARK PLACE

AERMOTOR WINDMILD STEEL FIRE BELL TOWERS STEEL TANK TOWERS GASOLINE ENGINES ANTI-FREEZING OIL PUMPS, PIPE, ETC.

"MILLWIND" NEW YORK

TELEPHONE: BARGLAY 7030

NEW YORK, 10/14/11

Mr. Thom. A. Edison,

Llewellyn Park, N.J.,

Dear Sir,

At the request of Mess. Phillips & Worhtington of this city, we have mailed you under separate cover a copy of our illustrative catalogue "Aermotor Applications of Wind Power". Rages %1 to 45 treat particularly on power Aermotors which are used for operating light machines of any description, which do not require more than 1½ to 4 NJ.

tion, which do not require more than 12 to 4 m.7.

Regarding the driving of dynamos or other electrical apparatus, would say that some 10 or 12 years ago we shipped to the Island of Barnados, British west Indies, a 16 ft, power Aerandor for the purpose of generating current to the standard stand in Barnados, and the contractors agreed to 11ght a small park and band stand in Barnados, and the contractors agreed to give 11ght one day a week, but they found after the plant was installed that they could flut as small supply 11ght seven nights a week, and did so. The outlit was continued in operation about one year, and the dead of the dead of the they could be a some supply 11ght seven nights awek, and did so the outlite to time 10 means of storage batteries which required replenishing from time to time to time.

Time to time. We have had hundreds of applications from prospective purchasers who wanted to install small lighting plants, the power of which was to be generated by our Asprator, but have healtated to submit definite information on the electricalpart of the equipment, because up to the present time we have rather thought that not alone was that part of the outfit excessive, but that it had not been perfected sufficiently.

We make two styles of Aermotors, one known as the pump-

ing Aermotor, which operates a pump pole having a Perpendicular motion, this pump pole being in turn attached to the head of the pump our other style of which is turn in turn to the pump our other style of which in turn is commetted to a foot gear as shown on page 44 of our catelogue, and from this foot gear we belt up to the various machines that are to be operated.

These power Aermotors are very popular with the farmers and in the Island of Ourneas, Dutch West Indies, where considerable corn is grown, almost all of it is ground by our power windmills. In the Turks Islands, Dritish West Indies, they have been grinding salt by Aermotors for the last fitteen years.

If we can furnish you with any additional information

command us.

Yours very truly.

Words Co

WHW/A

Oct. 15th, 1911

Messrs. Wood & Co., 59 Park Place, New York City.

Gentlemen; -

Your favor of the lith inst. is received and I beg to thank you for your prompt attention to my request. The illustrated catalogue of "Aermotor Appli-

The illustrated dranged of reservoir applications of Wind Power" has been received and I have found it exceedingly interesting.

If you will kindly favor me with a list of prices I shall be greatly obliged. It will not be necessary to send me prices of tanks, as I am only working to apply the windmill for generating and supplying electric current.

Yours very truly,

# THE BUTLER COMPANY WINDMILLS AND VICILICLES BUTLER, IND. U.S.A.

Case Assessa: Suffers Suffers Sufferson.

A 5.5.com 49 zoffich

D.A. Porrece, Surg. J. G. Hannish Treas.

GEO. A. POWERS, SECRETARY,

10/16/11

Thomas A: Edison,

Orange, N.J.

Laboratory Dept.

Dear Sir:

We have your esteemed inquiry of the 12th, and take pleasure in forwarding under separate cover complete catalogs, showing our windmills. Our double gear mills shown in \$31 catalog would be especially edepted to use you speak of, in view of their great endurance, strength and efficiency, and shility to control themselves automatically in all kinds of winds. They have extremely long bearings, and large shafts, and are long-lived.

If you desire one of these mills with tower for experimental purposes, we should be pleased to ship you one, free of charge, same to remain our property until such time as we might make some other disposition of same. Any changes you might went to make in the mill or tower, to attach your devices, etc. which could be used, you would have our permission to make, without any charge.

We do not know of any device in this country for generating electricity from windmille, except an experimental affair used at Moblesville, <sup>1</sup>nd. We understand several houses are wired and a motor in run with water pressure, the water

1 300 500

THE BUTLER COMPANY

#### TATE

being pumped into a storage tank with a windmill. We cannot say whether they use storage batteries, or run the lights direct from the motor. We think further information in regard to this plant could be obtained from Mr. Henry Miller, Ft. Wayne, oare of Mossman, Yornelle & Co., Ft. Wayne, ind.

We thank you for having taken the matter up with us, and wishing you success, we are.

Yours truly

THE EUTLER CO.

P:Y



Edison.

Orange, H.J. Dear Sir:-

Your valued favor at hand and same has had our best consideration.

We sent you our ontalogue which will give you description of our windmill, including the ordinary pumping windmill for reciprocating notion and the power windmill which

has a line shaft and pulley. We, of course, would be delighted to have our

windmills used for the purpose about which you speak and we know that you are making great progress in the art, but from our present howledge we osed a not recommend a whamill for the purpose you sugget, and in recent years the gasoline engine has come in and entirely supplanted what we call our ower windmill. It is a windmill with line shaft and pulle o drive machines on the farm. The motion is not stend there is no wind you do not get may power and while we have the best governor made on our windmill; the motion will way with the paste of the wind a good deal. One moment it migh

warm, are gareer or, the warm a good dead, One moment it might almost stop and then it would once up nath it would govern. So the socion night wary from 10 to 400 revolutions a minute. The jumping windfull are and always will be used for pumping water, although even then the gatoline engine being should the pumping water, although even then the gatoline engine being should the pumping the target.

pumprism waves, actually even then the gastline outing absolutely possible is hurting the trade.

We have a very large business founded on honor and brain and do not have to misrepresent our goods or what they will do in order to make cales and it is the writer's strong opinion, after many years of experience, not the proper thing to generate electricity. Even a pumping windmail which will develop a small portion of 1 Hz. when reciprocating motion with a tower, costs mearly double erected at a 1 H.P. Gas Fower Engine dose; and while it is the changest wer in existence, yet its uncorrainties and want of dependabili-t to be ugad just when you want it inefficient for the purpose are figuring.

This subject of making electricity with wind power has been taken up many times, and it would be ideal if the condi wore just rights Should you wish to experiment in this direction ld be glad to give you every detail possible but blue print do you no good as you can eliply imagine in the case of a windmill a reciprocating motion of from 4 to 7" is desire to 45 strokes a minute and on the other hand the power win



geared and drives a line shaft at a meximum speed of 400 revolution with pulleys on it same as any line shaft.

For would, of course, be proud to have you buy one of our windmille of either kind to put up and experiment with and under such drivenselness would be glad to make you a very low price, while giving you frank advice in the matter. Youre very truly,

APPLETON MFG. CO.

ST. LOUIS, CINCINNATI, GAS,GASOLINE B OILE ST. LOUIS, CINCINNATI, MARINE ENGIN I QUISVILLE SPOKANE: SALT LAKE CITY. DETROIT, INDIANAPOLIS. 5

LOS ANGELES, PORTLAND, DRE. DYNAMOS.

ST PAUL MINNEAPOLIS OMAHA, KANSAS CITY. SAN FRANCISCO. CLEVELAND, SEATTLE. SANTA MARIA BAKERSFIELD. LONCON.

NEW YORK. DEFT Supply-FEB-J.

900 SOUTH WARASH AVENUE

CHICAGO, H.L. Oct. 16th, 1911,

Mr. Thomas A. Edison, Orange, New Jersey,

Dear Sir:-

. In response to your personal lotter of the 13th, we certainly wish you everysuccess in your experiments for the utilization of wind power for supplying electric current through the medium of your improved Storage Eattery, and shall be more than pleased to render you every assistance in our power.

Unfortunately our tade catalog #65 F is out of print and the new catalog will not be ready until the first of the coming year. However, the writer has secured a copy of catalog #65 F from our files and we are sending it to you under separate cover. While #65 F is a trade catalog it contains perhaps a larger portion of technical matter with reference to the construction of windmills than the ordinary trade catalog, but perhaps it may not be of much service to you on account of its referring almost exclusively to pumping windmills.

The power windmill i.e. the windmill designed to deliver power in a rotary form has almost disappeared from the American market as it is being commercially replaced by the small 1 and 2 H.P. gaso-line engines. We took the last of our power windmills off the market three years ago and are not now building them.

We are mailing you under separate cover several copies of our old circular on the 14' Eclipse geared windmill, also of the large Eclipse windmills: ranging; from 16' to 25' in diameter. We still have the patterns of these machines but have not made any of them for three or four years

The 20' Eclipse power windmill may be of interest to you, as it was the size and style of windmill used by Mr. McQuesten in 1892, in constructing a windmill driven electric light plant at Marblehead Neck, Mass.

We are inclined to believe that you might be able to secure some information in regard to the plant from Messre. Chas. J. Jaeger & Co., Boston, Mass., who were our Boston representatives at the time. Our information in regard to the outfit is meager but we understand that the mill stood on a 75' wooden tower

Chgo., Oct. 16th, 11.

The dynamo was a 3 Kw. Lewis machine. It charged a battery consisting of 46 Bradbury-Stone storage cells of 200 ampere-hour capacity.

Plant optied from an off that of the translation of the plant optied from an off that off or our slawed in 1895. We are also attaching a litt of book and magazine articles on the subject of wind-mille which may be of some service to you. We openially recommend the article in the Bmilroad Gazette of May 5th, 1899, on the subject of electric power from windmille.

We would also euggest that you get the circulars issued by J. G. Childs & Co. Ltd., London, England. They eeem to have done come practical work along thie line.

The writer regrets that he is unable to give you any teenmical knowledge in regard to windealle, as all of his knowledge was esoured in the echool of "Mard Knocke". We trust however that we may have given you some leade which may be profit billy followed up.

Trusting that we may be of further cervine to you, we are

Fair Supp

Very truly yours, Fairbanks, Morse & Co., Supply Department.

CHEST CONTRACTOR CONTRACTOR OF THE STATE OF

#### WINDMILL LITERATURE.

- "The Windmill as a Prims Mover" by Alfred R. Wolff, M.E., Published by John Wiley & Sons, New York, 1885.
- "Experimente with Windmills" by Thomas O. Perry, Water-Supply and Irrigation Papers No. 20 of the U.S. Geological Survey, Governout Printing Britice, Washington, 1899.
- "Experimente in grinding with small eteclfeed mille" Bulletin No. 82 Agricultural Experiment Station, Univereity of Wisconein, Madieon, Wieconein 1900.
- "The Windmill: the sfficiency and economic use". Two vols. } Have unither Water Supply and Irrigation Papers Boo. 41 and 42 of the U. S. Geological Survey. Government Printing Office, Waenington, D.C. 1901.
- "The Triale of Wind Pumping Engines at Park Royal, 1903" by the Royal Agricultural Society of England, London,
- "Windmille in Foreign Contries". Special Concular Reporte
  Yol. XXX1. Government Printing Office, Washington. 1904.
- "Powerful German Windmille" by Charlee B. Hayward in the Soientific American, March 25th, 1905.
- "Electricity from Wind Power" By Alfred Gradenwitz, in the Technical World Magazine, April 1905.
- "Wind Power Electric Light Plant" Power, December 1905.
- "Wind Made Electricity" Pags 98 of the Technical World Magazine, March 1906.
- "Electric Power from Windmills", Railroad Gazetts, May 5, 1899.
- "A Country House Wind-Turbine Electric Plant"
  Electrical Review, November 26th, 1909.

#### WIND MILL ELECTRIC LIGHTING PLANTS.

The combination of a windmill and dynamo for generating electricity has been a subject of intense interest and very close study for years past, and it is only recently that electric appliances have been perforted on that they speed or a windmill are provided for the provided for a subject of the provided for by speedial dynamo construction and the partection to which the electric storage battery has been brought makes it a simple matter to store the energy of the plant until it is wanted. In the development of this combination of the windmill, dynamo, and storage battery struction in the details of the signal it issuff could be used, owing to the exacting requirements of electrical work, and we have made the Eclipse as

There being no public system of lighting at Marblehead Neck, (a summer report), private plants has to be resported to. In the spring of 1992 Mr. Plants has to be resported to. In the spring of 1992 Mr. engine, 3 Ew. dynamo and a set of 46 cells of etorage battery, having 12 M.P. engine, 3 Ew. dynamo and a set of 46 cells of etorage battery, having 12 M.P. plant was put in the stable and coet complete #1,000, supplying lights to the house and stable. The batteries were charged once a week sither by the proprietor or the gardener after he had been taught to run the colon of the stable of the stable and coet complete #1,000, supplying lights to the house and stable. The batteries were charged once a week was used in the summer time. Later in the full the batteries had to be oharged wire a week. This plant was, run winter and cumer; in the winter the lights were used by the caretaker, but it was found to be a matter of some inconvenses on the his other duties were of qual simportance, and to meet this difficulty and to saxe the cost of operating the eteam plant, Dr. McQueeten put in a winduil outfit, equipped with automatic regulators and self-tending devices, arranged to run and put hat ome to regulators and self-tending devices, arranged to run and put hat one the regulators and self-tending devices, arranged to run and put hat one the respective of a 20 foot Bolipee wind Mill, mounted on a tower 75 feet high to omter of wheel from ground. Power is transmitted through bevel harsy and 1-v8 into sharting to the house but at the base of the gor set of his ries were instabled as that another house could be supplied with light, the olde were instabled as that another house could be supplied with light, the olde were instabled as that another house of the circuit between the dynamo and storage batteries when the potential of the dynamo riese to the required voltage and breaks the circuit when the ourrent stops flowing into the difference of the circuit between the dynamo and storage batteries when the potential of the

This plant furnishes for two dwelling houses, a etable, work shop and the windmill tower, in all 137 lamps. During the shortest evenings 40 lamps hours per evening are used. The amount increases gradually until on Nov, lst 90 lamp hours per evening are required. At times when there is plenty of wind, the shop wind adjoins the windmill tower, at first un by an electric motor from the batteries, and later the motor has been used altogether when the shop has been run.

The dynamo is provided withs series coil on the field, wpund differently to the shunt, so the smoking delivers current a constant potential at various speed. But the street of cutting out the differential provided in the street of the street of cutting out the differential could be sufficiently in the street of the street

This was very satisfactory until the force of the wind increased, so that the wind mill delivered to the dynamo more power than it could safely take care of, and so would refer the wind of the course of the cours

From 1895 edilion Fairbaules, more rost, Cotalog

am quite sure that the outfit was not a commercial success and I do not think it is now in prince

FAIRBANKS, MORSE & CO.



## Eclipse Geared Windmills

The Eclipse Genred Windmill with special, heavy steel gears and shafts is the most substantial, dumble and astisfactory most for diving sarchinery by wind power made. Large drawings showing detailed construction of the mill will be turnished upon application.



29-FOOT ECLIPSE GEARED WINDMILL

TO FOOT TOWER as merblehed rech mass.

Diameter of Wheel, Feet	Horsepower in Wind 20 Miles per Hour	Speed of Line Shaft, per Missue	Appendicate Shipping Weight, Pounds
14	1	150 R. P. M. 165 R. P. M.	1400 1900 2300
16 20 224	l i	153 R. P. M. 166 R. P. M.	2500 3500

Priess include all successary spelight shalting and homes for a 60 foot wood tower, weeks feet of line shalting with losses, two pulloys, ask feet of line shalting with a distrest-seling pumping pick, and necessary costadings to attach to wood tower. Excess GEARSO WENDMELS CAN HOT BE USED ON STEEL VORTES. Great once should be used in secting power witherflish, not to everteen them, and see the the mill by priestly plants and true. Weeking drawings and till of material for building a wood tower for my of the above mills will be formabled to the pucklishing a wood tower for my of the above mills will be formabled to the pucklishing a wood tower for my of the above mills will be formabled to the pucklishing as

### FLINT & WALLING MFG. CO.





FAST MAIL PUMPS GASOLINE ENGINES

10/16/11.

Laboratory of Thomas A. Edison, Orange, N. J.

Gentlemen:-

The Pierce Well Engineering & Supply Co. were kind enough to forward your communication of the 12th respecting windwills to us, since they are not manufacturers in this line.

It is with great pleasure that we hand you under separate . cover a copy of our general catalogue illustrating and describing our line of windmills, and it is cortainly very interesting for us to know that you are developing a suitable battery for the storage of power as developed by windmills. We would, therefore, he glad to provide you with any and all data we have in reference to this style of motive power, and trust that you will feel at Altherty ato call: apon us at any time.

Yours very truly,

VEC/H

H. L. PARK, PRESS & TREAS.

ASSPESS ALL COMMUNICATIONS TO THE COMPANY, NOT TO INDIMIGUALS.

F.D.PARK, SECY.

### FLINT & WALLING MFG. GO.

STAR WINDMILLS TOWERS, TANKS, PIPE, FITTINGS



HOOSIER

AND
FAST MAIL

PUMPS

GASOLINE ENGINES

KENDALIATLEE, IN

10-16-11

Thomas A.Edison,

Orange, H.J.,

Doar sir--

Responding to your kind inquiry of the 12th, concerning catalogue of the Star Power wind mills, to be used in supplying power for electric current to be stored in your improved storage battery, will say, it is our pleasure to mail you under separate cover copy of our \$64 trade catalogue. Kindly refer to page 30 illustrating the engine parts, also the different sizes of power mills we build, together with the rated heree power, and other data relative to the opend based on a 15 mile wind.

Our Company would be willing to loan you may sine power mill with a stubi tower that you might think best for emperimental purposes. The base plate of the stub tower will be arranged for boiling to timbers on top of a building if so desired.

Thanking you very kindly for the communication, and awaiting with interest your further pleasures, we are,

Your very truly,

FLHT & WALLIE MPC.CO.

D.T.PORTER.

HOMER MANVEL Prest

THE PERSON NAMED AND ADDRESS OF THE PERSON O

J. S ROCKWELL, Secy & Treas.

ENSILAGE CUTTERS, CATTLE

STANCHIONS,
STEELTOWERS.
OWNED AND LICENSED
PATENTS ON SILOS
NO. 624750 OCT.17.1898
NO. 748017 DEC.8.1903
NO. 748010 MAY 21.1997
NO. 748010 MAY 21.1997



WOOD OR STEEL WIND MILLS

& TANKS.

OWNED

ENSILAGE CUTTER PATENTS

NO. 902.836 NOV.3,1908

STANCHION

NO. 902.861 NOV.10,1908

PATENTS PERDING.

Oct. 16th. 1911...

Mr. Thos. A. Edison.

Orange, N. J.,

Dear Sir:

the wind as a power for generating electricity and using it through storage batteries, is of interest to us. We have been watching this matter very closely, although at the present writing we are not un position to give you any prints or illustration to the control of pumping winders of pumping winders of the control of

perimenting in a large wind mill, 33 feet in dismeter, but the Writer had to push it along against the Judgment the Judgmen the form of the push of the first the firs

Yours very truly,

HM/ELS

KALAMAZOO TANK & SILO CO.

H Mano



Thomas A. Edison,

Orange, N. J.

Gentlemen:

We have yours of the 12th addressed to The Wolcott Windmill Co. and to the National Engineering Co. relative to Windmill catalogues, but regret to advise that we discontinued manufacture of Windmills some four years ago limiting our out-put entirely to gasoline engines.

Yours truly,

NATIONAL ENGINEERING CO.

OEM/F.









Thomas A. Edison,

Orange, N. J.

Dear Sir:-

Answering yours of Oot. 12th to ourselves and to Bennett Bros., Lowell, Mass., who handle our products in the New England States, we are sending our last Power Wind Mill Catalog to you under separate cover.

Mecpert, III.

Oct. 16th. 1911

During the last ten years the sale of power wind mills has been continually decreasing owing to the increased sales of small Gasoline Engines for power purposes. There is, without question, a very large field for wind engineering in electrical lines but no one has developed this industry to any marked degree. We have in the past furnished Power Wind Mills to the Wind Power Electric Co. of Madison, Wis. but we do not know with what success they have met.

If there is more information regarding our Wind Mills that you desire and cannot find it in our oatalog, we will be glad to communicate further with you. We manufacture a line of Pumping Wind Mills, the sale of which comprises the greater portion of our business. This mill you will find illustrated on page 46 of catalog. If such a wind mill will interest you we will be glad to send complete catalog on it.

> Yours truly, STOVER MRG. CO.



Mr. Thomas A. Edison.

Orange, N.J.

We are very much pleased to mail you a catalog, on page 28 and 29 you will find cuts of the windmill towers, and on pages 32 and 37 you will find no doubt what you are asking for.

Mr. H. Barbour, who lives near you, has some of these winhulls in speration with one of your batteries. He is talking about wanting you to attach one of our mindmills to a battery here at home where we can watch its operation when you get the details worked out we will take great pleasure in doing all we can to help you along. We would like to know the oost of a battery as used by Mr. Berbour.

You will notice, that this windmill, like all ourpower windmills, has a smirel in the gearing, so there is no draft on the gear, or what is rame by windmill manufacturers, walking around the gear, and as a result our windmill faces the wind and governs properly, while in other mills when the power required to drive the mechine is more than the force of wind the wheel walks around the gear instead of moving it.

Yours truly,

WOODMANSE MANUFACTURING COMPANY

Coctober 17, 1911]

follow for an answer to follow from your authorited bramps for ballotted bramps so as to get maxim power at the word to connect the departs through the cashed of det of swing with the word the departs of the word of the departs of the departs of the word of the departs of the word of the departs of the word

Educar

Oot. 17th. 1911

Flint & Walling Mfg. Co., 96 Wall St., New York City, N. Y.

Gentlemen:-

You favor of the 16th inst. and catalogue have been received, and I thank you for same.

I would like to have information on the following points:

 Can you substitute roller bearings for babbitted bearings, so as to get maximum power at low winds?

2. Would it practicable to connect the dynamo through gearing direct with the wheel shaft, and let it swing with it, if proper roller bearings were used, thus dispensing with the vertical rod and bevel gear? The dynamp would weight about 100 pounds, and offers about half a foot of surface to the wind.

Charter J. Day.

1345 Custom House Street.

widence Office 33 Canal St. Shops and Narcheuses; Lynnfield Centre;Massi

Mr. Thomas A. Edison, Orange, N.J.

Dear Sir:-

Your letter of the 12th brings back remories of a long struggle with windmills and Storage Batteries for electric plants which we have handled in the past. We have nothing in the way of illustrations of special way and the past of the the winter esaeon. While the plant was eucoessful from an experimental bacie we have never falt warranted in making any commercial exploitation of same.

We shall be glad to give you any information at our command, and remain,

Youre very truly,

CHARLES J. JACKR COMPANY

Diot. by land (CMH)

Oot. 18th, 1911

The Butler Company, Butler, Indiana.

Gentlemen:-

Your favor of the 16th inst., and also your contalogue, have been received, and I beg to thank you for your prompt attention, as well as for your kind offer to lend me one of your windmille for experimental purposes.

In all probability I shall avail myself of your offer later on, but at the present moment I am not quite ready to make tosts with a windmill, as I have only just ossmenoed to study the subject and there is much preliminary work to be done in preparation for the final attainment of my purpose.

In the mountime I would like to have information on the following points:

 Can you substitute roller bearings for babbitted bearinge, so as to get maximum power at low winds?

2. Would it be practicable to connect the dynamo through gearing direct with the wheel shaft, and let it swing with it, if proper roller bearings were used, thue dispensing with the vertical rod and bevel gear? The dynamo would weigh about 100 pounds, and offers about half a foot of curface to the wind. o. (2) Oct. 18/11

I shall also take advantage of your reference to the experimental plant at Hoblesville, Ind. by writing to kr. Miller, as suggested.

Yours very truly,

Oct. 18th, 1911

Mr. Henry Willer, o/o Mossman, Yarnell & Co., Fort Wayne, Ind.

Dear Sir:-

I am working out plans for supplying electric current to isolated houses by means of windmills and my new Storage Battery. In a letter from the Butler Co. of Butler, Ind. they refer to an experimental plant at Hoblesville, Ind. and state that you can probably give me some information in regard thereto: As I understand it some electric lights are operated from this plant, and I am desirous of ascertaining whether dynamo and atorage batteries are employed, and, if so, to what extent and with what success.

Any information you can give me in regard to this plant will be much appreciated.

Yours very truly,

B. S. Walnut

Oot. 18th, 1911

Messrs. Fairbanks, Morse & Co., 900 South Wabash Avenue, Chicago, Ill.

Gentlemen:-

I am in receipt of the favor of your Mr. Benedict under date of the 16th instant, and thank you for the estalogue and for your prompt attention, as well as for the full information you have given me. It will be of much assistance.

I believe that with the use of the 5/4 Watt Tungeten Lamp and my new Alkaline Storage Battery, which will stand any amount of neglect, the windmill can be made a success as a source of power, especially if roller bearings etc. are used, and I am going to work onit. If I succeed, I hope your Company will take up the power windmill again.

Yours very truly,

Meale a valt
orrelto
Or H. BARBOUR
HORTHIELD AVENUE
WEST ORANGE, NEW JERSE

Dear Sir:-

Under this cover please find copy of the Woodmanse Wingsmil.

Catalogue together with a seperate shoot showing the details of the Power Mill-This is the style of mill I am using here and from which I am able to get efective effort as shown by the annoter and voltmeter readings of scnething over a kilowett for short periods of time.

On page 6 of the catalogue the ring olders used at present are shown and on page 34 is shown the balanced gear and the main frame for the housing of the same. On page 35 the bed plate and post and the foot gear are shown and on page 36 the pull out rigging is shown. On page 38 the power drive as applied in a great many cases is shown and it will be possible to install a device similar to the one I have installed hore as soon as it can be proved that it is continuous in its operation under all conditions.

For the placing of the generator at the top of the nell in order to eliminate the friction as much as possible it is the problem of the proper mounting of the shaft 328 in the main frame 18 in connection with the main wheel spider 58 and the direct drive of the machine without the general shown.

An arranging for a low voltage machine of the kind nentioned to you and hope in a short time to have it in hand so that it can be nounted in in this way at the top of the nill and the amount of energy that can be stored in that way can be determined.

Shall be pleased to receive any suggestions you may wish to nake in connection with this test and remain.

Dear Sir,

Yours very tru

Thos. A. Edison Esq. West Orange,



Mr. Thomas A. Edison, Orange, N.J.

Dear Sir:

Replying to your favor of the 12th inst., beg to say that we doubt very much if the Wind Mill would be a suitable piece of machinery for a Storage Buttery. We have no atalogue giving complete information and believe that you would find it best to experiment with the Wind Mill in connection with your Storage Buttery, before placing same on the market.

We are selling very few Wind Wills in comparison with our other equipment.

Very truly,

/a

and more than

THE BALTIMORE COOPERAGE CO

MV

M. Menganari V

THE RED KING COMPANY

MANUFACTURERS OF
WINDMILLS, TOWERS, PUMPS, TANKS, ETC.

WATERON, OHIO, U.S.A.

Oct. 18th. 1911.

Mr. Thomas A. Edison,

Orange, N.J.

Dear Sir:

your valued favor of the 12 inst., received in regard to catalogue ect.

We are enclosing a copy of our booklet describing our "GAM LIFF" Windmill which we are having great success with. As to the construction and workmanship of our output, We openly defy any and all dealers or manufacturers to produce a Mill its equal.

We are very anxious to see the Storage Battery successfully used in connection with the Windmill, and believe our \*GAM LIFT\*
Hill will do the work perfectly.

Should you be further interested in our Mill, We would be very glad to send you complete Blue Frints, or better still We would be willing to ship you a sample mill, and should you find our "OAK LIFT" Mill the best, then all We would ask of you in return would be a recommendation, for public use.

Awaiting your further commands I beg to remain

Yoyrs Very Truly,

# FLINT & WALLING MFG. CO.

WINDMILLS TOWERS, TANKS. Drog FirmINGS



PUMPS GASOLINE ENGINES

96 WALL ST. 10/20/11.

Mr. Thomas A. Edison,

Dear Sir:-

Orange, N. J.

00° 21 200

Answering your esteemed favor of the 17th, would say that while the turn-table bearing on which the mill revolves, and also the thrust bearing which counteracts the wind pressure against the face of the wheel when in motion, are provided with ball-bearings, we are not manufacturing a windmill fitted with roller bearings.

Windmills for ordinary farm use must be made good but cheap, consequently it had not been the practice of windmill manufacturers to make the highest class machinery in this line, however, we appreciate the fact that for the purpose of generating power through an electric device, the wind engine should be made up in a very substantial and perfect manner, and we feel certain that other companies as well as the one we represent, would find it to their advantage to manufacture a suitable mill, providing it was shown that it would be feasible to operate same in connection with the electric generator and storage battery.

Undoubtedly the mill could be constructed to support the generator above the engine or mechanism, allowing same to swing FLINT & WALLING MFG. CO. with the shifting of the winds. Yours very truly,



## he Leach Wind Mill & Tank Co.

#### WIND MILLS, PUMPS, TANKS AND WIND MILL GOODS.

Tolist, St., October 21st 19140

Mr Thomas A. Edison. Orange, N.J.

Dear Sir. keplying to your inquiry of Oct 12th regarding Wind Mills to furnish power for Storage Battery purpos.

W'll say in reply. We are manufacturers of wind M ills to meet any requirements which our Customers wants, if such requirements can be met by wind power.

We make 4 different Styles of Wind Mills.

Two of these Mills which are goverened with a flexable Vane are exelent Pumping Wind Mills, but are a failure as mills to furnish power where a rotary motion is required. A will add , that, tall Wind Mills with flexable Vanes of all makes are not a success to ran furnish Power where rotary motion is required, Thereforef would be of little use

for the purpos which you require . We make 2 styles of Mills which are bith Centrifugal governing Mills. The se are shown in the inclosed Cattalogue as No 3 & No 4. The no 3 Mill is the one we have m de 40 years and in early days was

the leading power Mill for over 10 years. No 4 is practicaly the same Mill made without a Vane , but in other re spects as governming Mills is the same. But as a power Mill is much

sup rior to No 3. The No 4/rStyle of Mills is the only size we now make larger than 12 foot wheels, and is the only style we now make as a power Mill to drive rotary muchinery with, & have made no other style the last

18 years as power Mills, in fact we havehad no call for any other Style since this mill got into the field. May he to the same we now make this No 4 1/2 Mill 18 10 18 foot wheels. Of the same this No 4 1/2 Mill 18 10 18 foot wheels. No 5 Mill is not made new, But No 6/2 is made Is & 20 foot Wheels. We now have a later Mill made with 13 & 20 foot wheels in a little differ aut for a which will furnish power up to 15 herse in a 25 Mile w. -inds, and more power in heavier winds. , but less in lighter winds.

There is a good number of the No 5 mills now in operation which have run over 25 ge ars in the western countrys. Many of them 20 foot wheels. But there is more of the Ne 61/2 which have run 18 years and less, of all sizes and in nearly all States west from here and some East, which have preven perfictly satisfactory as a mill to run retary metie

We have not put up any Mills to run Storage Batterys with, but have sold Mills which we understood that part of their work would be to light places by storage & tterys, which would be Charged by the power from these Mills. But have me wr made further inquiry regarding the matter.



L. LEACH, Manager.

## The Leach Wind Mill & Tank Co.

Manufacturers of
WIND MILLS, PUMPS, TANKS AND

### WIND MILL GOODS.

Center and Monroe Streets. Chicago Telephone 207

Joliel, Ill., 190

No 2 A Successful power wind Mill to operate Rotary machinery with in order to be a success, Must be so constructed that it will not threw itself out of gear and stop when the winds happen to be 50 or 76 or more miles pr hower, but keep right on at work just the wame as though the winds was only 20 or 50 Milles, and only seas its metical when the winds drop down below that point which keeps the Mill at he opeed which the govern him weight is set fir as a regular special.

Another still more important matter, is that the Mill must be served as to prevent its revolving aroung thevertical shaft when against the work.

This difficulty cannot be over Come in any of the flexable vane it some sectional Wheel which breaks up in sections is the only Style which can be made to overcome this great difficulty in Power Mills wrich are to furnish rotary motion.

In the Booklet which I am sending you, You will find conciderable with ed mother treath on the matter of power bills.

From what information you will obtain here, I think that you will be

From what information you will obtain here, I think that you will be able to make some valuble conclusions regarding the latter of Power by wind for Storage Batterys

I do not at this time a ve any Blue Prints of anything which would give you ambtional light on what you are looking for.

But should you desire further inform ation on any thing pertaining M tha matter. I think to two could give it if it belongs to wind power and its applicaces. A will be gird to give you any information along the fine which is in our power to do.

Yours Truly.

L.Leach.

ROBERT G. CORCORAN, Secretary and Treasure

Manufacturers and Patentoes

Windmills, Pumps, Tanks and Towers
Office: 11 John Street - Telephone, 3947 Cortlandt

Office: 11 John Street - Telephone, 3947 Cortlandt

October 25th 1911

Factory-Jersey Ave. & 13th St., Jersey City, N.

Thomas A Edison Incorporated Orange NJ Dear Sirs

Your esteemed favor dated 12th inst in the matter of windmills for use with your storage batteries was duly received and would have had attention in due course but the writer has been confined to his home by illness

There has been more delusion and misrepresentation published by the daily papers concerning electricity generated by windmill power than about any other one thing I know

matter very throughly went into the matter very throughly ease tenty years age - with a Major Levis USA - who claimed to have inverted and patented a "out off" and my experiments resulted in lighting my factory for a dimmer given to those interested and prospective customers by electric ty produced by wind power - as well andoing other nice things - on a dimer given beyond the sequence but the sequence of t

There are - in fact - two items - which hitherto - have been prohibitive

Par Brains

Ons is an automatic "cut off" and the other - and more important - is an ample storage battery - which - in connection with windmills as motors - is necessary to provide for occasional calms - and is the rock which has proved disastrous

We have the most perfectly gov-srned windmill ever made and it has produced a perfect light from the dynamo directly - that is when we had the wind

We enclose engravings for your consideration - Fig 255 illustrating transmission of power from windmill to dynaso - Fig 115 from windmill to farm machinery - Dule print a showing an elevation of a windmill frame work and sizes of timbers for sustaining one of our #8 mills having a wheel 22'6" diameter - upright and line shafting - couplings - bsarings etc

If there is any sspecial information in this connection desired I shall be most thon in this connection desired I shall be shown happy to answer any questions you care to ask -or - if you could call here or at my factory by appointment - I shall be glad to meet you

Very truly yours

Sporeoran

Oot. 27th, 1911

Superintendent of Doouments, Government Printing Office, Washington, D. C.

Sir:-

Will you kindly forward me the volumes of WATER SUPPLY PAPERS, containing Nos. 19 to 52. I am informed that these are bound in two volumes, the prices of which are \$1.50 and \$1.75, respectively. I enclose money order covering cost of same.

I also desire to obtain SECCIAL CONSULAR REPORTS, volume XXXI, which I believe conteins reports on Windmills in foreign countries. If there is any charge for this, kindly let me know the amount and I will forward it.

Yours respectfully,



# Missium, Linnille & Go.

Sales Department.

Fort Wayne, Ind. Ot 30 1911

Thos. a. Edison Orange no

Dear Sir-

Jew Sie " Jone whened form of 18th came duly to hand. The wond mill Electric proprietion was a sure but by reason of four management we never got bryand the demonstration point. Inst to sell tentimial rights inter of manufacturing or installing plants. Muste Mi J. E. Skyluming or installing plants. Muste Mi J. E. Skyluming or installing plants. Muste the particular would as I was not in close touch with the builders & Country gir you the details of construction. In improved storage buttery would be an admitting to Just a plant. Deep to remain Your July.

Henry & Miller To Mossenson Jamelle To Mossenson Jamelle To

Satters - Wondmills

73rd ANNUAL SHOW, DONGASTER, JULY 2nd to 6th, 1912.

It is particularly requested that all communications may be addressed to THE SECRETARY."

LEPHONE GERRARD 3675, TELEGRAPHIC ADDRESS,

75,

Royal Agricultural Societzs of England. 16. Bedford 'Iguare. 101

London, W.C. November 7th., 1911.

Dear Sir,

I am in receipt of your letter of the 27th October with reference to the Society's Trials of Wind Pumping Engines at Park Royal in 1903. This report was issued in pamphlet form, but I am sorry to say that I am unable to send you a copy, as the whole of the issue has been exhausted.

The Society's Journal for 1903 contains the report, see pages 174 to 220 of the copy I have had the pleasure to send, by book post, for your acceptance.

Yours faithfully,

Secretary.

J.S.M. Row.

Thomas A. Edison, Esq. The Laboratory, Orange, H. J.

L. LEACH, Manager.



# The Leach Wind Mill & Tank Co.

WIND MILLS, PUMPS, TANKS AND

WIND MILL GOODS.

Polist, St., Nov Bin 1911.

Orange, N.J.

bear Sir.

Some days since I replied to your better of the

13th of October regarding Power Wind wills to operate Storage Batterys. Since that time I have herd from a number of parties who have been using Our power bills the last 20 years and less, and me when mentioning the Storage Battery to some of them, They all seem to be favorable inclined to use them.

One Party was at our Factory Yesterday who has been using one of our To foot Power Mills the last 5 or 5 years, he informed me that he was going to have One instaled very soon, he requires the use of light are and his barns from 2 to 4 hours during the short days when they have to de their Chores up to 7 9,8 Pm before they are through, and in the shart wintern sys, the use of light is valuble.

with his mill he says he can grind feed , 76 to 18 bushels pr hour in So to 25 wile winds. A he knows he has all of the power in ordi)ary wi ds to do his work with battery.

He also prefurs the storage Battery auto when ne can store his own power.

It is my opinion that when this storage battery is once started, that The Warmers in many localitys will keep their streets and Yards lit up untill about 9 PM. Winter times.

With the Storage Battery, they do not care wheather the wind blows all of the time or not.

There is hundreds of Farmers in the Narth west where the day light is s -horter than south which a ve our Power wills now in operation. Some in Northern Canada, " it seems to me that the Storage Battery and power Mills should be a great outfit for People ci-ear up to the Artic Circ-

-le inwinter time. In the futur, I will take a little more care to find out the fealing of People who have power Mills regarding the Storage Battery business.

I am confident that the most of Farmers would buy Storage Eatterys Auto as if they had the means of storing the power. or charging the betterys at heme. mendenen

L.Leach.

#### [ATTACHMENT/ENCLOSURE]

---THE---

# **VANELESS GOVERNOR** 13-FOOT GEARED WIND MILL.

The occompanying cut, No. 3%, shows the position of our Voneless Governing Windmili wheo out of gear, or during a hard wind storm, such as often will destroy other styles of milis It swings behind the tower like o flag on a staff, with the points of the sections stroight to the eve of the wind.

The wheel may be thrown into this position elther by the Hirow-out lever, or lo come that o

collect by the thron-cont lever, or 10 cease that 0

to a start pass of strind behalf increase the modules
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and the conotice of the conoti than we have set it for. If our mochioe will stand 35 revolutions of the wheel we set it for that motion, and so on.

This is the one great reason why the Vaceless Governor Geared Mills hare proven so much superior to many of the geared mills that are now so the market, and have been purchased by parties who did not know that there was much difference between one kind and soother

1st. We sourrant the Voneless Governing Power Windmills to be Warranty on the

Warranty on the Vancies Governing and only open section.

Name of the Vancies Governing and of good research.

A. To specific as stood obsee when properly set up on good substituted lacers and properly cored for.

Ind. We also agree to furnish, free of charge, of our plotting, the one year, free shipment of the come, any port or parts thick proce to be deferred by even of charge, the contract of the come, any port or parts thick proce to be deferred by even of charge of the process of the contract of the

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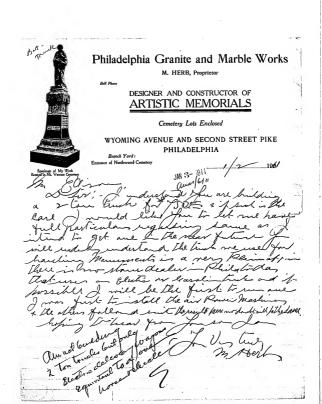
too time.

Our smollest graved power windmills have a 15 foot wheel. This mill will create a great deel of power
in heavy wired of ten to fifty miles per boar. But it is on addom, affry-mile winds occur that it is much
better to extert a mill strate comply he showers. It am deelers winged, of these to twenty-fee miles, thus
better to extert a mill strate to the strate of the showers are comply he will be the strate of the showers are comply to the showers are considered as a horse power work with only a each power matchine. Reportation for high winds in south to do a home power way that only and power assessment. Since object is impossible account of the danger from windstatters, and the south of the windstate of of

#### Edison General File Series 1911. Battery, Storage - Delivery Wagons - General (E-11-11)

This folder contains correspondence and other documents relating to the commercial and technical development of Edison's alkaline storage battery and its use in lightweight electric delivery wagons. Included is a draft letter from Edison to The Carriage and Wagon Builder, dated November 25, 1911, summarizing his work, as well as references to other articles by or about Edison. There are also letters, some with draft replies in the form of marginalia, pertaining to endurance tests and to Edison's control of the Lansden Co., a manufacturer of electric wagons. Other documents include an expense statement detailing experimental work conducted during the period August 1910-March 1911 and a drawing of a wood block wheel, probably by Edison, dated November 6, 1911. Among the correspondents are W. M. Barrett, president of the Adams Express Co.; phonograph dealer C. B. Haynes; longtime Edison friend and associate Cornellus E. Nestor, and W. Lanier Washington, whose crandifather had been a student of Samuel F. B. Morse.

Approximately 60 percent of the documents have been selected. The documents not selected relate to the procurement of supplies and other routine matters.



# Winston Vehicle Company,

Manufacturers
Business Wagons a Specialty

aux 1/10/11

Mr. Thomas A. Edison. Oranges, N. J.

Dear Sir: -.

We have been interested in the development of storage battery and notice some extracts from an article fro you which appeared in " carriage and Wagon Builder ", in which you indicate that your " Nickel-iron storage battery has been completed and we infer is now a commercial proposi tion. We also note that the results from your experiments with it on an ordinary one horse delivery wagon have proven satisfactory. We shall greatly appreciate it if you can spare the time to give us further data about it.

We should like to know if the equipment can be bought of you, viz, the Electric motors, the Controllers and the storage batteries or what the plan for distribution will be.

Could we now buy the cut-fit from you to test it on a wagen and at what cost. We build horse drawn delivery wagens and Trucks ranging in capacity from 800# to 5000# and up.

We notice you plan includes a smaller size wagon, which can be sold for considerably less than the prices you mention of \$600. to \$700. for ordinary city delivery.

Could you give us the approximate weight of the equipment, space required &c. We further note that the storage battery will last as long as the Vehicle and we suppose generates the ourrent or do they have to be recharged from a station like

# Winston Vehicle Company Manufacturers Business Wagons a Specialty

Winston-Salem, N. C.,

Mr. Thos A. Edison #2.

the present electrically draven care?. We know your time is very valuable, but we shall very much appreciate any data that you may be able to spare the time to give us.

With a high appreciation of your wonderful achievements,

Gordially yours.

HR/R. Winston United Cr.

We enclose self addressed envelope for your convenience.

J. W. NEIL, TREASURER

# Smith & Neil Company

CARRIAGES. WAGONS, CARTS, DRAYS, ETC.

JOBBERS OF CARRIAGE AND

ALL KINDS OF REPAIRING PROMPTLY DONE VEHICLE RUSSILLAND

Jacksonville, Florida,

Reid 23 1911 Jan 1, 24 1913 reference de la companya del companya de la companya de la companya del companya de la companya del companya de la companya de la companya de la companya de la companya del companya de la companya del companya del companya del companya de la companya del companya de

Mr. Thomas A. Edison,

Orangeburg, New Jersey.

Dear Sir:

We note in the Christmas edition of the Carriage will should be highly appreciated.

Very truly yours,

SMITH & NEIL CO.,

WVInnot.

Mark Janin 4 Elcolics a do not use the Edwar Welly Where many Che Gog Just storas dre discarded We Lead Gall for ouris -

how many Elietria has blooms allo new yo Corpet geople - Haves No Edison Batter



LABOR MATERIAL

# 14 1. MARCH 31ST, 1911.

1910

	1910		-	
T.A.E. Studebaker Bros. McDongall & Potter P. Jones & Co. Universal C.Fdy. Co. Diamond Chain &Mfg.Co. United Copper B&M Co.	8/26 9/19 9/28 9/27 9/16 9/12	Laboratory Fay Roll for August 1 - #8952 Sprooket 1 Axle and Forge 2b Special Spokes 25 1be. Castings 1 - 3/8 x 70" Chain 5 Gastings	\$26.63	\$4.80 30.25 7.50 1.00 3.61 1.04
Ed. S. B. Co. T.A.E.	9/30	1 - Keystone Vehicle Co. Wagon #518 and freight Sundry Small Supplies Pay Roll	101.13	108.50 5.32
Jas.A.Coe & Co.	11/18	1 Bar - 3 Channels 19 lbs. Castings		.76
Universal C.& Fdy.Co.	10/8			8.47
T. A. E.	10/31	Sundry Small Parts 1 Brake for Wagon #518		8.50
	/	Pay Roll	371.46 27.90	
Ed. S. B. Co.	10/31		2	7.25
T. A. E.	11/30	Sundry Small Parts Pay Roll	467.88 9.68	
Ed. S. B. Co.	11/30			87.00
Gleason Works	11/2	2 Steel Sprockets		24,50
Lansden Co.	11/3	1 S-26 B. Controller		N-400
Chris. Musler	11/10	1/2 Set 1 1/2" Rubber ) 1/2 " Channels ) Repairing Brake )		41.00
T. A. E.	12/31	Pay Roll	119.52	.57
		Sundry Small Parts		3.19
Jeffrey Mfg. Co.	12/1	Chain and Sprockets		0.15
Universal C.&Fdy.Co. Dilworth, Towne &L.	1911 1/24 1/11	30 lbs. Castings Cut Steel		1.20 92.84
Jas. A. Coe & Co.	1/11	Bar Steel		4.34
T. A. E.	1/31	Sundry Small Parts Pay Roll	460.15	6.85
E. P. Works	2/28	1, Sectional Punch and Die Copper - plating 8 nuts		39.77 •07
T. A. E.	2/28	Sundry Small Parts Pay Roll	408.24	6.10
Hammacher, Schlemmer & Co.	ø/8	1 B. &. S.Gear Cutter	10000	2.07
•		Carrie Forward	2,070.6	y 440.20

#### ORDER #25543

	1910	LABOR	MATERIAL
		Brought Forward \$ 2,070.69	443.20
Universal C.&Fdy.Co.	2/16	61 lbs. Castings	2.44
United Copper B&M Co.	2/4	11 1/4 lbs. " 5 lbs.Amber Mica: 9 7/8	2.70
A.O.Sohoonmaker & Co.	2/23	lbs. Mica Plate	20.88
Diamond Chain & M. Co.	2/20	2 Chains	6.83
Baylis Co.	2/21	10 Raction Brush Holders	8.02
Cameron EL. Mfg. Co.	2/1	44 1/2 lbs. Cometr. Bars	16.57
E. S. B. Co. T. A. E.	2/28 3/31	Pay Roll 20.81 " " 419.58	
T. A. S.	0,01	Sundry Small Parts	11.19
E. S. B. Co.	3/31	Pay Roll 2.45	
E. P. Works	3/31	l Set Armature & Field )	7.80
		Punchings for Auto Motor) 1 Set Dies and Punch %)	7.00
C. A. Goldsmith	3/3	5 1/4 lbs. Compo.Castings -	1.31
C. A. Goldsmith	3/23	12"Le Carbone" Brushes	7.58
Morrison Fdy. Co.	3/27	25 lbs. Castings	.92
A.O.Schoonmaker	3/20 3/11	3 Grd. yds.Oiled Muslin Tape 26 lbs. Magnet Wire	3.40 5.52
Jas.Goldmark Co.	3/23	1 Odometer	6.00
	-, 20	\$ 2.513.53	54436
		2 1 544.36	<u>.</u>

John to april 18491 - \$ 3,057.89

# MEMORANDUM REGARDING CHANGES ON MOTOR FOR DELIVERY WAGON.

- 1. Increase outside diameter of the field to 122".
- 2. Increase length of pole so it will take copper strip 1" wide.
- 3. Recess inside diameter of field punchings so that coils will lay flat without bending, and leave plenty of olearance over the pole face.
- 4. Ho-inforce frame arms with ribs and shift position of polos and frame arms to 45 degroos.
- 5. Use heavior and shorter bolts for securing front bracket to frame.
- 6. Drill and tap re-inforcing ribs to receive Cap screws.
- 7. Allow 5/8" more room for the back of armature winding.
- 8. Shift oil pocket so that it will not interfere with armatura winding.
- 9. Arrange a brush yoke so that it can be shifted accourately and firmly sooured.
- 10. Bring brush leads out through lower side of front cap and arrange firm support on clamp, to prevent vibration.
- 11. Make the arms of front bearing nerrower.
- 12. Cut back the flange on front cap, so as to make brushes more accossible.
- 13. Arrange front cap so that thin shoot iron covers may be used to enclose commutator.
- 14. Arrange fret on back of frame and front end cap for supporting motor.
- 15. Make the end of back bearing housing square, so that plain disc oil cover oan be used.
- 16. Use prosent armsture disc; but lighten with holes near center.
- 17. Arrange bearing housings with grease box on tep.
- 18. Reduce weight of castings wherever possible without decreasing strenth of necessary part.
- seary part. Same 7/6 "could all . 19. Arrange commutator tend commutator lugs half inch.
- 20. Decide on proper size of brush holders and brush holder stude.
- 21. Armaturo slots, field, poles, air gap and longth of armaturo e-' field to be the same as the prosent motor. XWB

April 25, 1911.

H. W. SHITH, SICHE

NESTOR ELECTRIC VEHICLE CO.

WESTOR ELECTRIC VEHICLE CO.

LANSDEN WAGONS AND TRUCKS

LANSDEN WAGONS AND TRUCKS

LANSDEN WAGONS AND TRUCKS

Personal

LIJI

AYES STREET

Mr. H. F. Miller,

Nator = There taken over the

Mr. V. G. Bee, Battery Co., Lunder We will furn Baison Storage Battery Co., Lunder We will furn good Channe at a low p

Dear Friends: Y hours no ablection to the Knowing that you both arguer friends of ours and more than the triends of ours and more

anomaly that you now a safety that the state of a state

Edison Storage Battery Co. and are doing our utmost at all times to promote the good of the cause, as you know.

In the matter of the recent action taken regarding the Lanadan Adomany, you can see the complications that will necessarily arise binamuch as we have a matter up at the present time regarding the building of a number of five ton trucks, and what I should like to know is what attitude the Edison Company will take if we should handle any other make of wagon than that of the Lanadan Company. And also, at this time, would it be possible for the Lanadan Company to give us the shop rights, etc. in order that we may build these wagons on the Coast?

Prospects here are looking good for a lot of business which will certainly come to us within the near future.

Thanking you for your consideration and advice in this matter, I

Yours yery truly,

an

J. B. Wayon

Chaire Divie Workies

...... SUNSET SOUTH 180

SAN EXPERIENCE CO.

3000 CENTRAL AVE.

JM 26 1911

LOS ANGELES, CAL., June 19, 1911.

Orange, New Jersey.

Dear Sir:-

Thomas A. Edison,

I have been waiting patiently for the solution to the light delivery car problem. If you will notice by the very poorly taken photo enclosed that in my mainess we use a number of auto delivery cars.

We have at the present time thirty-one care in service, including thirteen different makes. Our gross lead, including drivers, average less than 1,000 lbs. The daily mileage, for each our averages thirty miles. The average lbkeep cost per month per car for the year lold, including labor and material was \$40.48 per month; the average geneline consumption per care for the year lold, and the second with the average geneline consumption per care to the year lold to the second year of the second year and year and year are were running every working day, we average five care in the shop for repairs all the time. I have a very accurate Upkeep record for the past two years and would be pleased to give you an accurate actual statement, giving in detail the smouth of service we get out of feaching through the court, the cost of Upkeep, etc., should you be interested in such a record.

How for my object in thus addressing you. I have been endeavouring to discover an electric vehicle built suitable for the requirements of my line of business and smiller lines that require quick, seally handled motor delivery wagons built for light loads, yet substantial enough to stand the reaching that they must get owns to their our-

J.J.JENKING PRES. S MAN

Chris Dine Works

PHONES SUNSET SOUTH 120



3000 CENTRAL AVE.

LOS ANGELES, CAL.,

#2

bersome bodies swaying and bouncing over rough roads. So far I have been unable to find anything on the market under \$2,500. They tell me that your new battery is no better than the old Exide bettery, except as to maintenance cost, that it costs more than the old battery and does not give any more mileage. Also that the cost of a set of your batteries in a light delivery wegon would be about \$550.

I am writing you for authorisative information on the subject is it to possible to construct an electric to the subject in the prosecution of the subject is the subcial for 31,000° If so, there is a field in this city of los angelse for at least 500 of them and I personally would be very much interested in such a wagon.

With apologies for taking up so much of your valuable time and my sincere gratitude for any information you may give me, I am

Your respectfully funktion

## [ATTACHMENT/ENCLOSURE]



35- Mengans 1 rocks

The Adams Express Company,
Office of the President,
New York,

Joelman Estim

Mr. Thomas A. Edison,

Orange, N. J.

Dear Mr. Edison:

I am without advice from you as to the cost of the two-ton trucks. For your information, matters are progressing and I think in a short time we will be able to give you definite information.

Yours truly,

Amacauly President.



Mr. Thomas A. Edison.

Orange, N.J.

JUI 58 1611

Dear Sir:-

There are so meny different conditions in our delivery system in different perts of the country that it would be impossible for us to give you figures that would be representative of the cost of delivery service. We decided, therefore, to tell you in a general way what we do in Brocklyn; We steble ever there forty horses and figure that it costs us \$2.45 for each day's work that we receive. Included in this cost is the interest on our investment, depreciation at 33 1/5% a year on the stock and 25% on wagons and harmess, cost of feed, horse shoeing, repairs, rental, water taxes, and every conceiveable charge. We have no records at all to show the number of deliveries made each day nor have we any record of the average number of miles made. We pay \$140. each for our wagons, \$25.00 for each set of harness, and \$225.00 for the horse.

Trusting that this will give you the information desired, we remain.

 ESB. Trucks

W. M. Barrett,

Adams Express Co;

59 Broadway,

Expect to have estimate on two ton truck tomorrow.

Thomas A. Edison

June 28,1911

.

B.S. Wag TOWNSEND BROS. DEPARTMENT STORES Broadway and Hudson Ave Townsend Building

Also please let us know the cost of their motors - Hes where they can be seen in factor in A. J. City or Cange It. ] Townsered Bros.



## C. B. Haynes & Co.,

### Edison Phonographs and Records

and All Supplies. P. O. Box 801. 121 W. BROAD ST. No. 5 North Seventh Street.

Mr. Thos. A. Edison Orange, H. J.

Dear Mr. Edison :-

I have been talking up this delivery wagon, sold. We want a demonstrating wagon and prefer to have the one that the box sets Can you give me the exact date or any where ny I am confident wood demonstrating wagon. had something to show.

prominent house here but Can sell one to a ver

If you can give me any would have to have a specially made top for it. information on this subject will you please do so and oblige,

Yours very truly,

C. B. Haynes.

W. LANIER WASHINGTON 17 MEX CRUENCE NEW YORK

Thomas A. Edicon Esq.

Orange, N. J. My dear Mr. Edicon:- Wandson of John William 1911

I want to thank you again for your very courteous and considerate treatment yesterday afternoon at the time of my visit to your laboratories, which was made most interesting to me.

I am writing also to remind you of your promise to keep me in mind when the Delivery Wagon that you are now testing is ready to be placed on the market. I believe I can handle that proposition to advantage in New York and vicinity.

I mentioned to you in the course of our conversation that my grandfather, Lewie W. Washington of Virginia, was a student at Princeton under Prof. S. F. B. Morse, and did much of the mechanical work for him in making the first telegraph instruments, and that he had written a description of it for some institution in Paris, which I believe you mentioned the name of to me. I do not recall it exactly, and an imposing upon you to sak that you will repeat it to me.

Again thanking you, and with kind regards and wishes for continued success in your valuable efforts, I am

Youre faithfully.

cole polyte dunque Paris Main Has hugh

Hov. 6th, 1911

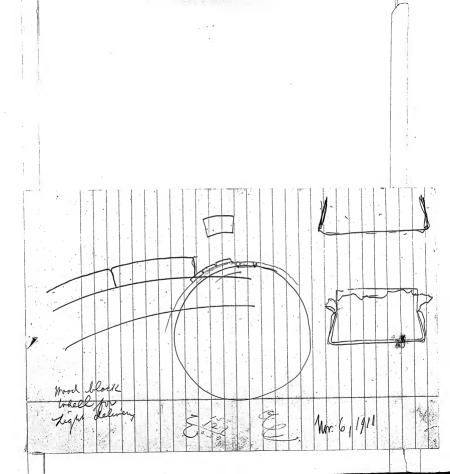
Er. W. Lanier Washington, 120 West 57th Street, New York City.

Dear Mr. Weshington:-

Replying to your favor of the End inst., I beg to may that your name has been placed on my file and it will give me pleasure to notify you when I am ready with the electric delivery wagon.

The institution in Paris that I referred to in our talk the other day is the Ecole Polytechnique.

Yours very truly,



B.S. Wagons The Adams Express Company

Office of the Bresident Ni. 111 Broadway >

November 8, 1911.

My dear UC. B. Letter hand

no reference to Adams Express West Orange, N. J. it referred horrs poulsous arty Mr. Thomas A. Edison,

My dear Mr. Edison: to present wallow Generica michaels . our count do business

Your letter addressed to me, dated October 18th, was conformed to me by Mr. Doty on November 2nd. As I did not under As I did not understand whether your reference therety was intended to specifical dicadely to quest d that there ly apply to our Company, I made inquiry and fil coming aver to see you has been no contention between our people and the Landon Com-Landle of house or Albert peny about prices, and therefore I assume that your reference was intended to apply generally and not specialcally.

I do want to say in this connection that I have been very anxious to substitute electric wagons for our present equipment at Newark, but I have necessarily deferred doing so until I could learn definitely what the Pennsylvania Railroad proposes to do about its passenger station. If certain changes are made our Company's warehouse will have to be torn down and then we must get another location. The determination of

Ywelsyn

that question is the only reason why I have suspended the order for trucks. It is my purpose, if we change our warshouse, to consolidate in one building the warshouse and garage, which arrangement should prove both convenient and sconomical.

Youre very truly,

Wm Danist

Nov. 16th, 1911

Mr. T. A. Edison:-

Below you will find record of dates of delivery to Mr. Hicolai of various details which were used in rebuilding delivery wagon, and also horewith are tracings showing the completeness of each, and signed receipts for same.

On November 3rd prints showing details of new sprockets, together with jack shaft brake ties, were delivered.

on Hovember 4th fully dimension mketchows delivered, giving him all information to make up now frame. This frame was made riveted together and because of defective workmenship had to be taken apart, new side frames bent up and cross ties re-riveted.

November 4th blue print of angle iron frame cap for carrying king pin was delivered, and casting received on the 6th.

Assembly drawing of the frame, together with king pin block and new shock shearbor for rear axile, was delivared on Hovember 7th. Assembly layout showing detail construction of this shock absorbor, togother with all necessary parts used in connection therowith, were delivered Howember 7th

Tracing for attachment to present brake branket for holding the shoot absorbing device in position was delivered on the same date, and because of the absonce of a blackmith Kr. Holdin thought it necessary to machine out of a solid block of steel the supporting plate shown on appended tracing. The directions for making up this piece as a forging were not followed.

Details of the king pin were delivered on November 8th.

There has been no delay in rushing through the blue printigl. necessary for building the wagon. Those details which have seen let of the seed that the seed of the

MA.B.

The forgings for stud axles were somewhat delayad and prints for these parts were delivered on Hovember 11th, on which day the parts were received.

the Drawing Room was in the bushing for front wheels. No report was made regarding axcessive werr on ends or the parts and face of knuckle, consequently no second to been made to overcore search the work has been readed to add ring on casting, and this part of the work has been rushed as far as the brasting loom is concerned.

ALS/ES

12.5. magan

For Carriage + Wagon Builder

### ELECTRIC DELIVERY WAGONS

In the December, 1910 issue of the Carriage and Wagon Builder I mentioned the fact that I was developing for the use of groosers, butchers and other tradesmen a light electric delivery wagon, to be operated with a special type of my nickel-iron storage battery. The first of these experimental wagons, as described in that article, was a standard one-horse delivery wagon which I had bought in the open market and changed over to an electrically driven vehicle, and which at that time had been put on a rumning test on the roade at Orange.

This wagon has been running continuously ever since, until about a month ago. My object was to run it on a break-down test in order to develop any weaknesses that might exist; and for this purpose I selected a circular routs of about 16 miles. This routs covered a great many rough places, including unopened streets and poor roads. Some other etreets were paved with cobble stomes and Belgian blocks in bad condition, and consequently were full of ruts and bumps.

My instructions were to use two shifts of men and run over this route day and night at full speed, with 50 per cent overload on the wagon. The rear wheele had solid rubber buggy tires, but the front wheele had only the usual steel tires. Thus there was nothing to save concussion on the front part of the chaseis. I fully expected that there would be a number of breakdowns, and that the wagon would have to be towed in cossionally. These expectations were fulfilled, but not

to the extent that was expected. There was no total breakdown at any time, and up to the time when I had its operation stopped, the vehicle had made 4000 miles.

From the experience gained in running this No. 1 experimental wagon I built another one, No. 2, in which the weaknesses of the first vehicle were eliminated and several improvemente were added, including a different motor. One of the weak parts of wagon No. 1 lay in the inadequacy of the motor, which was the best for the purpose that I could buy on the market. In order to overcome thie trouble I had a special type of motor decigned and built at my Laboratory. It is etrong enough to run a wagon two or three times as large and is very substantial in its construction. This later wagon No. 2 was completed and put on a eimilar breakdown test with 50% overload about two months ago over the same route, under practically the same conditions as the earlier one. The only difference is that this vehicle is operated by three instead of two chifts of men, and is run day and night, making about 125 miles per day.

Wagon No. 2 is a marked improvement over the first one. It is of far more rugged construction, mechanically and electrically, and runs at a higher speed with great-ereconomy. Thus far it has run 1400 miles under rigid scruting, and the weaknesses developed have been carefully noted and remedied. I intend to have this car run over the route mentioned all through the winter in all sorts of weather. The experience thus gained will enable me to construct No. 3.

in which all previous defects will be climinated, and which I fool sure will be the model of a light electric delivery magon that will be satisfactory for general use, and not require the same of the control of the same of

I took No. 1 off the regular route, and allowed one of our local tradesmen to use it for a few days for his usual deliveries, which were accomplished satisfactority in a teams less time than was usual with his regular horse-wagon delivery.

Throughout all the neveral tests that I have mentioned above, the one part of the equipment that has given no trouble is my storage battery. Notwithstanding the tremendous strain to which it has been subjected, there have been no delaye or breakdowne from any failure of the battery to do its part. Hence, I feel no hesitation in assuming that when my experiments on the vehicle are completed I shall have a wagon capable of use in the hands of the ordinary tradesman, and needing no expert seedsfance.

Nov 25, 1911

Barting Gent

Flease cancel, at once, E. S. B. Co. order #25543 overing work on light delivery magon. Mr. Kdison has instructed us that this expense is to be borne by him porsonally, and as soon as possible, charges already received by as covering this order will be assembled in the form of a bill and charged back to him.

TJL/ER

Copies to Messrs. Backman, Gould and Walsh.

dure. In will be tree to got the

In Inthe Elisa Sile at Lat I Sun ofber

JAMES A. HEARN & SON. \$10,12,18,20,22,26,830 West Tourteenth St. 57,9,11,13,15,17,19,2123,22,27,829 West Thirteenth St.

Luchum Huller New York, Hovember 25, 1911. How with what it was count to put these Mr. Thomas A. Balson, Chairs a good order of men counters orders, N. J. Rawing water follows

Dear Sir:- Que detter =

Replying to your latter of Howenber 235 would say that while I was invited alone to the meeting at your office and there were present three of your representatives and yourself, yet I must repeat that my memory has been considered a very socurate one and that I made full notes of the agreement on resching the Orange station. While it was an agreement prejudicial to the money interests of Jesse A. Hazara & Son in that thoughave a claim for actual damages suffered far larger than the cost of that you agreed to do, they will live up to it and expect no less off-you, it

During the almost total tite-up of our business in the holiday season of 1910 when seven or eight of our Gity whiles and our two Ownage-Mentelair and Newark vehicles were being towed in every business day rumning 22, 25 and 27 miles with batteries listed to do 85 miles, I complained daily to the Lamadon Company (and many times directly to the Edison Entery Company) without receiving assistance.

Your betteries at that time were unprotected and no one from the hettory company nor from the Lamaen Company (although moreing of our trouble and constantly inventigating) suggested that they be protected. Your betteries at that time were put up in wooden trays, foatened with nails driven from undermeath, the points of which rested on the metal cells. It was found that part of the current of the battery was actually being taken in the wooden trays through those nails, the trays being sufficiently charged to give a reading on the meter.

For two weeks a representative of the Lansden Company rode on ur Orange-Montolair electric oar to see where and what the troubles were, every single day of which the oar was towed in giving 25 to 28 miles on an 85 mile battery. We are informed that this type of vehicle had been originally tested and approved at the Ridicon Rattory Company's works.

Your Lansdess Company sold us in the Summer of 1910, fifteen chasses and tro heavy trucks, probably the most institute in improperly constructed vehicles being operated in this vicinity today. You your self-told me that the copper leads from textury to motor were only one sixth of what thay should be to get benefit of battery's power. You are the contract of the contract of the point, though you sarryly have not forgotten.

Your offer was obviously made as a small westitution in settlement of the damages James A. Hearn & Son sustained and further to protect the name and regutation of your Companies, and being so made was noospted.

JAMES A. HEARN & SON. 8.10.12.18.20.22.24.26.830 West Journachth St. 57.9.11.18.15.17.19.21.23.25.27.820 West Thirteenth St.

New York.

Mr. Thomas E. Edison, -

Your our people admitted that the truder were so institional and badly constructed that the Lansdam Company outly to have stand them bade to the extert and rewinded the purchase price which was not entry paid for constituing mind to the paid to the property of the prope

outpd as outlined in my letter of Norehor 2nd is both the asiest and least ocally for yea, and in the dot on consequence of the control of the castest and least ocally for yea, and in the following the company and ourse of the following the company and ourse and the foot deep company's regulation is at steen in the matter, is the fairest, quickent and best estimatent.

Yours very truly,

H. Presendo Beach

P.5.- To the recent communication from the Lansden Company endeavoring to "sake bobk "the agreement made over three months ago termine recent and alter truck number 150 which there's you carry of the third the recent and later truck number 150 where a state of the truck of the truck number 150 where a state of the truck number 150 where 150 where the truck number 150 where 150 wh

Endurance testo are naco 62. run on a new small Eccolic delivery wagon, to Take The place / Klic usual onc= home delivery wagow, for which there will probably be a ford down The first wagon was built last great acoas run about 4000 buces, could over (and, fiche word roads around Ovavelex from the information attained, which is drang great now running night or day

slifter This valide has 1200 milesx - Each day of mile it makes 100 to 125 wiles with a double overload unce continue Statel 15,000 of 20,000 wils incovered but before the Mileage is all amed No 3 weeks all the improvement found from the Experiments co be made a this believed that this Vehicle will have be perfectly satisfactory & wee that have a depresention not higher than 8 per cent At the great line the lowest price Electric delivery wagon he sold for \$2000. The view wagon well sell to

What is part of the vehicles is a place where they can be changed

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### List Prices

<b>R1</b>	ment &	Jars	
		Cell	24 Cells
7	plates	\$13.55	\$325
ġ	PAGGO	17.45	418
ıĭ	11	22.00	528
iż	11	25.95	622
15	**	29.85	716
17	11	33.85	812
iģ	11	37.85	908
Ta		40.95	982

A-6 This requires 15 June lead 10080 " to equal it would follow the lead 10080 " to equal it would be platefulfe" Without trays 15 plate lead, lift \$716.

Adds 396 lbs. to carriage and 1440 watt hours shy.

1 Watt carries 25 lbs. I mile - for extra weight requires
15-1/2 watt hours for the weight - this with 1440 less weight
clearly requires a 17 plate cell to get equal mileage.
List \$812 and then it would overload carriage and would not
give the mileage.

Par Trucks

# EDISON BATTERIES USED IN COMMERCIAL TRUCKS. in Chap.

Marchall Field Co	10	truoks	with	60		oells	each
tf 11 17	1		tf	60	A-8	11	11
Carson Pirie Soott	7	tř	11	60	A-6	Ħ	11
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Armour & Co.	2.	tt	tt	60	A-6	tt	1f
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### Edison General File Series 1911. Battery, Storage - Delivery Wagons - Endurance Tests (E-11-12)

This folder contains correspondence and other documents relating to the commercial and technical development of Edisor's alkaline storage battery and its use in lightweight electric delivery wagons. The documents concern road tests made in the vicinity of Edisor's laboratory, on a route of his choosing, during the period August-December 1911. Included are instructions for the tests prepared by Edison for his chief engineer, Donald Mt. Bliss, and an undated blueprint containing a map of the test course along with instructions to the drivers. Most of the documents vere prepared by Bliss and Edison employee J. T. Chesler and provide test results for the vehicle known as "Wagon #2."

Approximately 20 percent of the documents have been selected. The material not selected consists of duplicate and variant versions of the data; some data from tests conducted during 1910; and an undated blueprint containing a map of the test course and instructions for drivers of the vehicle known as "Wagon #1."

2 Bles (Deusis -Cose the worst parts of Regarding the Horse wagon NOZ the road are always to be taken = I want it to run over normal alonger Dease arrange for two at 14 wien per hour with a load of 500 lls over above The Domeone go out occumb weeks in exactive to wy awatch see of they Carry out witnessen as to taking the world Tanada the load by When you have it rightly greated greaty put it outle oute feeles will junk vion Decaded lyme Chesler Knows where tis -Larrange the ballery want the rocite Taken not as you have it One the Cartracks One side in to run between now but wough a rails - no bumps or hole way that t can or Early og puckly are to be avoided but laken at full speed an all

4 Blues 3 Beis we can keep the wagon removed oa freshly out = as Bookman Charged Callen sul is to build them in pout want that It where you are in doubt as delan vehicle quoxe Chan lo minutes Co to a change Getter consult weake the change you pulape better have together decide -3 Sets of A8 two of I understand you are which are on charge making new arke a wheel always with Rupokle nearer Center Show there be no break will get it all ready downs The Z wen should Should Chepresent knukker avarage 210 to 225 miles work perfectly outstand it may be that it won after runny a few days you (se butter to strok to it Can see colat a going as the wheel are stack be upradicable o you pros tuake butch should anless ale Wat Salufarlay cefter to have the part or a good vin you dan partices as

6 Bliss 5 Blesia Change - also you should ge alias to Upuhad batter have a set of Springs for front perhaps The same of ysta set of wheels Getter on front as it would with Tunpkins bearings lock body to axely beller have them all ready Thates for fired the - We shall we a lot of monel for a trial -Wetal plates for forming 1/16 also you should get Turkling for Molor a thick well be the ones we Jacka have Then chall adopt Whatever Ott Vocady so that when pour went to try it this plate los pleake house Owell take 2 dr 3 was just anlesipale on this wagon to the Limit Moore is to teach Works men thate things ready to how to make Speaker deaphur you wer them + when Garned Chay go anak

+ Orant to websipling all of Blue tophono who -He also works out tache al with men Automonio to from logger the working drawing how to make matrices for & model of the Hom dealin and Volen choulde done us poon as possible You should lake us will Weber the Speaker parts, Non are nealing 6 models Engineery dept Hey have been un shop over The Small hornless Table a worth one at least machine & undersland should be selected from will be done in 200 those already in Whoores 3 days necessary detail Donession of twined aver be got out & the world to weber so he aun go aten a devise took Julished & all Twined to make them with boerts (OGBEN -It is but to make us Change whatsoever water work The onles tensalisterion hat of chumber

: 10=Bers Bliss altrebentle in s a variety elgh that areneeus topo with the 50 doaden Dease help how out Kegardang the 50 /8 tubs belent machins I simed an on Auderson should put them Wrough the same as he de with the 50 1/4 tube weaching to bids outsides of makent Certain ports at Ol water fal

Phon. - many.

Aug. 1, 1911

Blise:

Regarding the 1 Horse wagon No. 2.

I want to run over normal streets at 14 miles per hour with a load of 500 lbs. over and above the wagon complete, just as it will be in practice, to-wit: 16 08 cells.

When you have it rightly geared and ready put it on the route selected by me - Oheaeler knows where it is. Want this route taken. One (on) the car tracks one side is to run between rails - no bumps or holes are to be avoided, but taken at full speed and in all cases the worst parts of the road are always to be taken.

Please arrange for two raliable runners and have some one go out occasionally and watch and see if they carry out instructions as to taking the worst part of the road. Arrange the load by using soap boxes filled with junk iron and arrange the battery not as you have it now, but in such a way that it can be easily and quickly removed and a freshly charged battery put in. Dont wont to detain vehicle more than 10 minutes to make the change. You perhaps better have 3 sets of A 8, two of which are on charge always.

Should there by no break downs the two men should average 210 to 225 miles daily.

After running a few days you can see what is going to be impracticable, and you should anticipate it and have the part or parts ready so we can keep the wagon out. As Bachman is to build them, please keep him posted, and where

you are in doubt as to a change better consult together and decide.

I understand you are making new axle and wheele with knuckle nearer center and will get it all ready. Should the present knuckle work perfectly estis factorily, it may be that it would be better to stick to it, as the wheels are stock size and make, but if not estisfactory after a good run you can change. Also you should go shead and get a set of wheele with Tumpkine bearings and have them all ready for a trial.

Also you should get Tumpkine for Noter and jack and have them ready, so that when you want to try it will not take 2 or 3 weeks - just antiofrate on this wegen to the limit and have things ready before you need them. You had better have a set of springs for front - perhaps single like autos would be better on front as it would look body to axis better.

Plates for Fred Ott - We shall use: a lot of Monel metal plates for forming veneers. I think those 1/16 thick will be the ones we shall adopt. Whatever Ott and Aiken together request on this plate viz please have done.

Moore is to teach Works men how to make speaker diaphragms and when learned they go back to Phone. Works. He also works out and teaches Al Wurth's men how to make matrices for disks.

You should take up with Weber the speaker parts. You are making 6 models - they have been in shop over a south - one at least should be selected from those already in Moore's possession and turned over to Weber so he can go shead and devise tools to make them with.

It is best to make no change whatscever. Moore is fully informed on the subject. See Weber and Moore together and start Weber straight on it.

Andereon is to furnish Weber the working drawings and model of the Horn disk. This should be done as soon as possible so we get it out of Engineering department.

The small hornless table machine, I understand will be done in two or three days - necessary detail drawings for this should be got out and the model finished and all turned over to Weber.

The only unsatisfactory part of this machine is the legs. I have asked Anderson to make attachable in some way a variety of legs so we can get the right design.

Regarding the 50 1/8 tube filling machines and the other machines of which I signed an order today, Anderson should put them through the same as he did with the 50 1/4 inch tube machines to with getting bids outside and making certain parts in Phono. Works and Lab.

Smith will prepare drawings for the tube ringing and other machines that are recessary to go with the 50 loaders. Please help him out in the draughting.

Keep up experimenting with rectifiers. We must have something for the 1 Horse and sparking batteries.

I am giving instructions to the various experimenters and you will help them out as they want it.

We want a good headlight on 1 Horse No. 2 wagon for night running.

The artist who is making up Concrete Cabinet - I ordered him to go nhead and get plaster moulds so that he could make one big cabinet per day complete. Please look after this and help with any hinges, iron reinforcement, etc. he wants. When you are satisfied he can make them O.K. and cheap, speak to Weber to give him some room in any old place where he can mould and make one per day, but do not let him go shead until Weber and Dyer are satisfied with the results.

Edison.

Messrs. Edison Bachman & File:

General report on Wagon No. 2.

Speed runs were made with the different sprocket combinations and it was found that not more than 11.5 M. P. H. could be made with 16 colls with the best gear ratio as beyond the colls with the best gear ratio as the speed are ratio as the speed are ratio was increased. Therefore to get the speed called for it was measured. Therefore to get the speed called for it was measured. Therefore to get the speed called armeture so as to bring the motor speed up to 1800 and adjust gear ratio to give 14 M. P. H.

I decided to put the armature winding and segments in multiple, thus increasing the speed and at the same time doubling the copper section and reducing the armature resistence to 1/4 of the present value.

This can be done without rewinding and will be ready Saturday the 5th.

The side angle frame shows tendency to buckle back of the truss rod and in new mounting angle section will have to be increased as well as trussed.

Tie rod on front axle broke on account of flaw or orack in the rod.

New axle received for shorter knuckle, also 2 front wheels.

Ordered steering and brake rod ends, also 2 front side springs.

Laying out design for new angle frame and Hyatt roller bearings on jackshaft.

D. M. BLISS.

August 14th, 1911.

Mr. Meadowcroft,

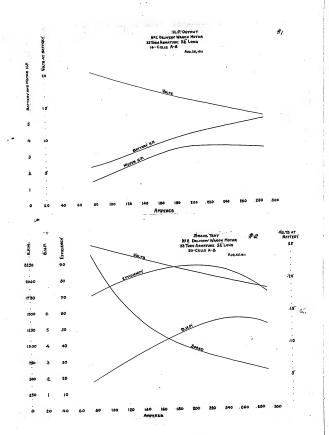
startod.

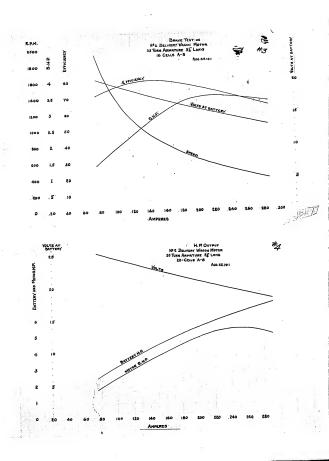
Friel runs at 14 H.P.H. show that 130 to 300 amps is required and that the avorage losses are 2.5 volts on bettery and 3 volts on motor, controller, & wiring making 5.5 volts in all. We have rewound the motor to 15 volts, increased the longth of field & exerctions section 50% and the sections of copper 35 1/5% so as to get the H.P. at the low voltage and reduce the copper losses as much as possible on 300 amp 14-15 volt battery voltage.

The Motor will be finished temerrow and test started. The new motor is 100 lbs heavier than that in wagen \$ 1.

Detailed figures will be given as soon as test is

D. H. Bliss.





August 29th, 1911.

Mess. Edison, Bachmann, & Meadoworoft.

## Preliminary Test of No. 2 Delivery Wagon

A large number of tests have been made with different gear ratios and under various conditions of load in the endeavor to obtain a speed of a miles per hour, and at the same time a capacitie to taking the Eagle Rook climb successfully, without for battery. The figures detailed successfully that on the 14 mile gear the drop in battery with the cells is so great on the hill climbing seed that the voltage at the motor terminals is colored to low to develop the required horsepower to take the hill,

The best gear ratio on 16 cells in the present wagon is 12.5 to 1. This gives 9.85 miles per hour with 800 1b load, and will take Engle Hook in 14 minutes with 320 1b load.

The notor will deliver up to 6 H.P. without over-heating in the voltage does not drop. To make the speed of 14 miles per hour and also claim Eagle Rook, either not manage gear of 2 to 1 or an increased number of cells would be necessary; either of these will increase the cost of construction considerably.

The truss rods and clamps on the present light angle iron frame have broken repetably. We are now mounting motor that bearings on state springs on front all the bearings on jack shaft. As soon front on the bearings on jack shaft, he soon all to 1 gear.

The ourves attached show that the motor efficiency is high and the horsepower will mentratened between wise ranges of motors of the Boller bearings for the said smaller of hell bearings on the motor will make with the present battery of localis, it looks as though 10 miles per hour with the ability to make the Bagle Rock jetstign of the limit.

D. M. Bliss

Aug. 29th, 1911.

RECORD OF TESTS ON #2 DELIVERY WASON WITH VARIOUS GEAR RATIOS.
TESTS MADE OF LEVEL CORES IN FAIR CONDITION.
LOAD GOO LES, CHOCLUDING DRIVER!
ACTUREY — 16-48 "EDISON" UELLS

<u>A</u>	VERAGE VOLTS	AVERAGE AMPS.	RATE OF SPEED	GEAR RATIO
	15.03	166.13	11.83 mi.per hr.	1 to 5.8
	18.13	146.73	12.749	1 " 7.25
(20	21.06	164.68	14.70	1 " 7.25
0011	8) 18.31	80.	9.27	1 " 12.5
	18.38	66.20	9.73	1 " 15.08
	18.75	. 62.51	9.	1 " 18.85

The above tests were taken with plain bearings in jackshaft. Since then frame has been rebuilt and Hyatt rollers put in jackshaft.

# ENDURANCE THAT ON FOUR UNIT RECTIFIER FOR IGNITION BATTERY CHARGING

		LO	OF RUN		
Sept.	13	Amps.	9.5	Hours	24
#	14		10.5	. "	24
**	15	**	10.5	**	24
19	16		10.5	n	24
	17	**	10.5	*	24
**	18		10.4		24
"	19		10.5	**	24
	20	**	10.3	"	24
	21	**	10.5	11	24
	22	.,	10.6	**	24
	23	*	10.5	n	24
"	24	"	10.4	17	24
**	25	**	10.3		24
"	26	**	10.4		24
=	27	**	10.4	"	24
	28	•	10.5	"	24
"	29	"	10.5	Total "	400

Temperature rise of contact plate 35° C.

No appreciable wear on contacts at end of run,

Test concluded on Sept. 29th in order to combine the units with large outfit for charging delivery wagon.

S. C. Lengley.

October 7th, 1911.

Messrs. Edison, Bachman & Meadowcroft:

## ACCIDENTS TO #2 DELIVERY WAGON WHILE RUN ON SELECTED COURSE

#### Ootober 7th

Both headlights went out just after leaving Bloomfield Center. Found commections loose in pin plug commectors; repaired same and completed the course.

right hand angle iron broken in two places; one where riveted to casting on front axle and the other break just outside the jack shaft bearing, as shown in sketch below.

These breaks were caused by the twisting strain on Chassis and vibration.

We are now changing angle iron frame work to a three point suspension, which will give greater flexi-bility to front wheels without affecting the rest of the Chassics.

Chester

Messrs. Edison, Bachman & Meadoworoft:-

#### CHAPTER OF ACCIDENTS TO #2 DELIVERY WAGON WHILE BEING RUN ON SELECTED COURSE

### Aug. 28th

Truss rods on both eides of under frame work enapped and weight of batteries and driver in front, spring front axle. Truss rode were replaced.

### Aug. 30th

Both trues rods on eides under frame broken again by bumping over average roads. Truss rods repaired again.

### Sept. 5th

Both trusess engaged again and main chain jumped the sprockets (due to slackness from eag of angle iron frame) and wedged exteen differential eprocket and bearing casting huch a way that it was necessary to diseasemble the disc eart to remove the strain of the which going at full speed, and the sudden stop at the vehicle, broke the commutator end leg off the motor.

#### Sept. 6th

The spokes of front wheels loosened in hub, partly due to excessive shock and wheel being rim bound.

The wagon will now be dismonthed and a new frame work and side springs will be put in front to heatfor support the weight of better is and driver. The new frame work is much stronger, though quite springs, and should make a good substantial rigging.

Another feature of the change is the "Hyatt" roller bearings in jack shaft, and ball bearings in motor.

ACCIDENTS TO #2 WAGON REBUILT WITH HEW FRAME, NEW JACK SHAFT, NEW AXLE AND FULL ELLIPTIC SPRINGS IN FRONT AND STRONGER PRONTWHEELS.

#### Sept. 25th

Both legs broken off sprocket end of motor, due to excessive shock from bumps. Angle iron supports fastened to motor to take place of cast iron legs.

#### Sept. 26th

Brook Park, leaving tirelies in the deal came off at Branch Park, leaving tirelies in wheel, it looked as though tire that the bolks were contracted in the first was replaced and special attention paid to shrinking it on properly.

#### Oot. 3rd

Hand lover on upright of steering arm broke at Silver Lakes. That or the steering gear was taken off an old magn and herer made if but too large a pin and the property of the steering the steering the steering most strain. A new piece was made and properly brased in place.

Iron tires on both front wheels have hammered out from rough roads and is are now 1/8" smaller in diameter than they were when first put on.

Rear rubber tires out very badly from sharp cobbles and rough road.

#### Oot. 3rd

Twisted tepered square end of unright on steering gear off. There was no flaw in the metal of any kind and must have twisted off due to excessive strain on same while going through deep sand. A new piece was made up of very being those Michel steel and properly adjusted to steering gear.

#### Oct. 5th

Two bolts holding motor down enapsed off and caused the breaking of one of the angle irons supporting the motor. A new piece of re-enforced angle iron was put in count for the breaking of bolts is the great leverage the chain pull has on the motor A suggestion was made to support the motor from the center of strain, which will be taken up as soon as possible.

#### Oot. 6th

Rubber tire on left hind wheel caught in sharp portion of road at Bloomfield Ave. & Franklin St. and was ripped off. Had to ome in on channel rim. New tire was put on with special care.

#### Oct 6th

Commutator end motor support broken off at Mont-olair Center when going over some bumpe in road at good epeed, and motor chain came off, due to shifting of motor. Had to proceed cerefully to get to Laboratory without further damage.

#### GENERAL DATA

About 700 miles in all have been covered by tests on the road although frantic efforts were made to resp going day and night. 800 pounds were coarried throughout the tests, the loose iron in rear of wagon bouncing up and down going over ward one portions of the road and putting greater strains on everything them a solid load.

Through the rough usage the new under frame work, axlee and jack shaft stood up very well. Motor performance perfect.

J. T. Cheeler.

Mr. Zdran

# OVER SELSCIPCOURSE IN \$2 DELIVERY WAGGINTH BEW STITUS THERE POINT SUSPENSION FRAME. SOO LES. CARRIED BESIDES THE WEIGHT OF OPERATOR

		MILES			REMARKS
DATE	RUN NO.	PER TRIP	HOURS	ISTN .	REMARKS
Oct. 13	. 1	16.4	2	15	
n 13 as comebo charged.	2 ody remov Padlock	15.2 ed plug fr and chain	2 om cell will b	s and e put	Could not complete Scotland St. therefore battery was not fully on plug.
Oot. 13	3	16.4	2	25	
" 13 broke at	4 Bloomfie	16.4 1d Center.	2 Twent	45 y min	One of the wires in head light utee were lost repairing same
Oot. 14	5	16.4	2	30	
# 14 shaft be off from cotter p	6 aring; bo left-har ut in and	16.4 olt was not id main bra i a collar	2 rivete ke stud put on	20 d ove due brake	Loet bolt from left hand jack r properly. Cotter pin sheared to brake shaft shifting. New shaft to prevent its shifting.
Oct. 14	7	16.4	2	20	
* 14	8	16.4	2	30	*
" 14	9	16.4	2	15	
Oct. 15	10	16.4	2	БО	Stopped by patrolman for to ex- amine license to drive
Oot. 16	11	15.3	2	15 ful	Stalled on Scotland St. Celle not Lly charged as current was off Sunday
Oot. 16	12	16.4	2	10	
" 16	13	16.4	2	10	
		16.2 d to wait e on left ats and tir		ehea	Got stuck in very deep mud at the Completed course on its own theel came loose from hammering out red off.
Oct. 16 " 17 " 17 Tota	16	16.4 16.4 16.4 276.3	2 2 2	10 20 20	

Maler

Calle Midness "Edison New York"

Trom the Laboratory Thomas A Edison

Orange, N.J. 00t. 17th, 1911

Silver Sum

Mr. T. E. Clarke, Gen'l Supt., The D. L. & W. R. R. Co., 90 West St., New York City.

Dear Sir:-

We beg to call your attention to the dangerous condition of crossing existing at Scotland St., Orange, N. J.

The sharp angle at this crossing and the large spaces between the boarded section and rail makes it very dangerous.

In order to cross with a vehicle it is necessary to go almost parallel with the tracks, as the gateman's shenty does not allow driving at right angles to the railroad.

Should a vehicle get caught in the railroad tracks it would be almost impossible to flag a westbound train in time to prevent a bad smash-up, on account of the big ourve in the railroad approaching the Scotland St. crossing.

Even if nothing else is done there should at the gateman ignal put in such a way that it can be set from the gateman's Sharty cannot the parties the parties of the parties

tall hours of the day and might be pass over this crossing set all hours of the day and might and on several occasions wheele cought the wheel of an automobile was used a better that and wood planking and was in immediate danger of being weeked by two trains coming in opposite directions.

We hope that you will look into this matter and give it your early attention.

Thanking you in advance, we are,

Yours very truly, EDISON LABORATORY

JTO/ES

October 18th, 1911

Mr. Meadower of

OVER SELECTED COURSE IN \$2 DELIVERY WAS ON WITH SWIPEL THREE POINT SUSPENSION FRAME.
800 LBS. CARRIED BESIDES THE WEIGHT OF OPERATOR

DATE	RUN NO.	MILES PER TRIP	HOURS	MIN.	REMARKS
Oot. 17	18	16.4	2	25	
" 17	19	9.2	3 	45	Steering arm on upright twisted

" 17 19 9.2 3 45 Steering arm on upright tristed off due to lower bearing for upright of steering gear freezing. Had to make temporary repairs on road and return to Laboratory, Steering gear will be fixed and a small compression greass our put on the bearing that froze

Oct. 18 20 16.4 2 20 Front axie broke about eight inness from in fri-hand spring, Could not tell whether a flaw or weld gave may until axie is taken out and examined. Front tire on front left wheel is about \$3/6\* learger than the wheel, allowing the spokes to losen in rin and hub, making the wheel too weak to continue further tests. Right hand tire on hind wheel worm domained further tests.

in and a heavier set of wheels in rear with larger rubber tires will be put be substituted for the present lighter carriage wheels. Special steal tires will be put on both front wheels which will prevent hammering out and stretching.

Total miles up to date with swivel frame 318.3

JTherle

Mm. Mangarak

October 18th, 1911

Front left-hand ruber tire stayed on wheel for 680 miles.

Rear left-hand ruber tire lasted through 700 miles.

Old frame lasted 729 miles/

Rear right-hand rubber tire lasted 1041 miles.

Left-hand wheels travel over roughest part of the road.

J. T. Charle

THE DELAWARE, LACKAWANNA & WESTERN RAILROAD COMPANY, OFFICE OF GENERAL SUPERINTENDENT,

T. E. CLARKE, General Superintendent,

SCRANTON, PA. October 21, 1911. 20889: Orange, condition of Scotland St. crossing.

Mr. J. T. Chesler,

c/o Edison Laboratory, Orange, N. J.

Dear Sir:-

I have your favor of the 18th inst., calling attention to existing conditions at Scotland St. crossing, Orange. This will be looked into at once, and I will write you further. Yours truly.

al Superintendent.

Margeren ?

of motor.

The following is a record of the amount of wear on exles, bearings, chains, sprockets etc. on #2 Delivery Wagon after running over selected course for 1000 miles.

Wear on tapers of right and left stud axles .002" to .005"

End thrust wear on right and left hand stud axles - .03125"

Wear on jack sheft .005" to .015"

Wear on Hyatt roller bearings in jack shaft - .004" to .013"

Wear on solid pins from main chain from .023" to .065"

Wear on side chains from .002" to .005"

Wear on differential sprocket from .0625" to .128" per tooth

West on motor sprooket .002" to .008" per tooth

Wear on side approachets .002" to .006" per tooth There is no appreciable wear on bronze bearings

There is about .005" wear on bronze bushings for stud axle pin

The brakes show no appreciable wear, excepting the lining, which has worn to a smooth surface and will probably last six or seven thousand miles more.

where the end thrust on studexles can be taken up and lessened by fibre washers.

New ohrome nickel steel "Hyatt" rollers are coming through for the jack shaft. The Hyatt Company claims that those rollers are better suited for our service.

A new short is being made for these bearings and will be hardened where it engages in bearing.

as the old sold pin ohe in wor so much that the crive was very jerky and inerticient. It was found that the crive was very jerky and inerticient. The glad Carton steel well be made for the differential. The present approach was furnished with differential.

Made a teet as to power required to drive the jack shaft wheels sto. and got the following results:

Motor running free through resistance 35 amperee.

Jack shaft with eide chaine off driven with solid pin chain 9-57 amperes.

Jack chaft with cide chains off, driven with roller chain -- 50 amperce.

Motor driving jack chaft and hind wheele jacked up either chain -- 3 emperes more than driving jack shaft only.

According to above figures it takes 15 amperes to run jack makes only we could not determine shouther this loss we most interest could not determine shouther that the state of the state of the state of the state of the put in, this test will be repeated and a report covering it cent in.

The losees shown in the foregoing would tend to raise the watte per ton mile and the test on another sheet shows it at 161.5 watts per ton mile.

Oct. 31,1911

The time given for each run is about five minutes in excess of usual time and the drivers should be able to go and come on schedule unless something happens. That would make nine runs per day at 16.4 miles per run, or 147.6 miles in twenty-four hours; but we find it necessary to grease the wheels about every fifty miles and that would split one of the runs.

# SCHEDULE FOR DRIVERS OF 42 DELIVERY DAGON

Oct \$1,1911

name	LEAVE 1ST RUN	ARRIVE 19T RUN	CHANGE	LMAVE 2ND RUH	ARRIVE 2ND RUI	CHANGE	LEAVE SRD RUN	ARRIVE SRD RUN	CHANG.
John Pfeff	9 P.H.	11.30 P.N.	10 H.	11.40 P.E.	2.10 A.M.	10 H.	2.20 A.U.	4.60 A.N.	10 M
Chas. Poyor	5 A.M.	7.30 A.M.	10 E.	7.40 A.N.	10.10 A.M.	10 M.		12.50 P.N.	10 H
I. P. Rodman	1.00 P.M.	3.30 P.H.	10 H.	3.40 P.N.	6.10 P.M.	10 M.	6.20 P.H.	8.50 P.M.	10 #

Drivers must note down in their books the following voltage

Time of Start

Time of finish

#### Milenge

All details as to location etc. of any accident or breakdown which might occur while on their runs.

In cases where the vehicle is stalled, stalling ourrent and voltage must be taken.

The temperature of the air must also be taken at each run.
A thermometer will be found on well at entrance to Laboratory
and can be read when driving by.

Mr. Mendoweiner

RECORD OF TEST RUMS
OVER SELECTED COURSE IN #2 DELIVERY WAGON OVER SELECTED COURSE IN PROET AXLE.

WITH NEW FROET AXLE.

HEAVIER RUBBER TIRES ON REAR AND STEEL TIRES
SHRUNK OF FRONT WHEELS.

DA!	re .	RUN	MILES PER TRIP	HOURS	MIN.	REMARKS
Oct.	23	21	16.4	2	25	•
*	24	22	16.4	2	27	
*	24	23	16.4	2	15	
the	24 batt wing	24 ery 00 a goo	16.4 nnectors due d contact wi	to heavy th batter	20 taping y post	Solder melted from one of on end of connector not
Oot.	24	25	16.4	3	30	Got stuck in very deep mud had to be towed in.

20 16.4

Grand total mileage 1180.1

Total miles on swivel frame up to date 451 miles

Total mileage on new front axle and new 1-1/2"

rubber tires -- 114.8

Road speed test with 16 cells and 800 pounds load (excluding driver)

Running for one-half hour to use up gas voltage we get a speed of 9.5 miles per hour.

Voltage when taking off charging current was 25 volts.
Voltage for speed test 19.5
This speed of 9.5 miles per hour is .18 of a mile per hour
better than test report sent in to you Aug. 29th, 1911 under the
mans conditions of gear ratio and voltage and is probably due to
the rollers in the jack shaft and swivel frame.

A speed of 12.19 miles with 800 lb. load was attained with a geer ratio of 1 to 7.25 as shown in report of Aug. 29th, but we could not climb Eagle Rook Hill with ratio under such conditions.

# OVER SELECTED COURSE IN \$\frac{1}{2}\$ DELIVERY WAGON WITH HEN PROUP AXIS. HEAVIER RUBBER TIRES OH REAR AID STEEL TIRES ENGINE MISSELE.

DAS	re	RUN 110	MILES per trip	HOURS	MIH. REMARKS
Oct.	25	28	16.4	2	RB
н	26	29	16.4	2	80
*	25	30	16.4	2	40 Rear tail light burnt out Had to stop to repair same.
15	26	31	16.4	2	50
Ħ	26	32	16.4	8	55 Chain came off on Grange Rd. due to it boing shock.
Bloc	27 mfie sore	33 lå Ave. w comes	16.4 Found thread through.	2 stripped	35 Chain came off again at lon easting where chain tighten-
Oot.	27	34 otal	16.4 114.8	2	20
	G	rand to	al mileage 11 les on swivel	80.1 frame up	to date 565.8

Total miles on swivel frame up to date -- bosse for the fires -- 238.6 Total milesge on new front axle and 1-1/2" rubber tires -- 238.6

Oct. 26th measured course 1/2 mile long

	Wette per t	on mile test		
Total Wt. 26000 lbs.		Average Volt.	9.55	Watts per ton mile 161.53

NEOCHD OF THE RUN OVER CHLEGTED COURSE IN 22 DELIVERY WAGON WITH HER PROFT AKES

HRAVIOR RUBBES TIRES ON REAR WHRELS AND STEEL TIRES SHRUHK ON PROUT WHEELS

MILES RUM BO. PER TRIP HOURS MIH. DATE 20 ٤ 35 16.4

16.4 27 36 Times in deep f 16.4 3 15 Got atuck on Burnside St. several times in deep f 1000s sand, but after letting the battary rest a while, managed to pull through. Oct stuck later on Bottland Street, but managed to get out in the same way. The battary dropped this run did not held while mage was third. The voltage throughed this run did not held up as good as usual sed to the calcar of the state of the colder western the particular set of cells were on sharpe for over nine hours at from 70 to 80 amparen.

25

Oct. 27 38 16.4

" 27 29 18.4 5 58 det stuck in raid and mand at Scotland St., the voltage dropping to about 7 and the current 270. Had to be tower in by tenseur. This set of cells were on for about 8-1/2 hours of from 70 to 80 amperes.

Oct. 28 40 16.4 2 35 Gould not occupiete Sectional St. on second of stalling. This set of calls were on for bout 12 hours at from 70 to 80 suppress, Oct bridge strates have been been been seen from a beauty rules and from the formal particular statement from the company of the stalling stalling of the stalling stalli to angle non fount. When the ra a piece well be put under bear Total mileage 98.4

> Grand total milenge 1278.5 Total miles on swivel frame 664.2

up to date Total miles on new front exle and 1-1.2" rubber tires - 387.

Boxes with handles and hell centers are being made to hold each set of cells. This will facilitate the charging of the cells and increase the number of runs. Also if the voltage is affected by the lower temperature, the box should eliminate that difficulty.

We expect to get these boxes konday afternoon and a new schedule will be started as per attached copy.

Mr Meadower &

RECORD OF TEST RUN OVER SELECT COURSE IN #2 DELIVERY WAGON WITH NEW FROM AXLE HEAVIER RUBBER TIRES ON REAR WHERLS AND STEEL TIRES SHRUNK ON FRONT WHEELS.

MILES DATE RUN NO. PER TRIP

REMARKS

MIN. Got stuck in mud on Scotland St. 20 Oct. 28th 41 16.4 Voltage dropped to 7.Amps. went up 270. and finished the run. Was pushed out by several men

HOURS

One portion of Scotlant St. is 20 Oct. 28 16.4 undergoing repairs and the dirt and cobbles are dumped in such a mass in the road that it is amost impassable. It takes a little more time to get by that point now.

Oct. 28. 43 16.4 2 20 Coming down grade on Cherry St. the front wheels hit a cobble stone and skidded into raised track of the Engle Rock Oar Line. The force with which the wheels struck the track broke the ball connection from righthand knuckle to steeringlever and the wagon burged its top against a tree and same of the state plees of roof frame work and tore the panel board roof and fixed the ball connection properly or Laboratory.

Oot. 28 44 16.4

Could not make Sunday morning run on account of power shutting down at 12 P.M. Saturday instead of 6 A.M. Sunday. Oct. 29

Total miles 65.6

The breaking of the ball connection was, of course, due to the process of the course o

The new hardened jack shart is being ruched through, as are the new enclosing boxes for the battery. When the new jack shart is put in another test will be made to determine the losses in transmission etc.

Total miles on swivel frame 729.8

Total miles on new front axle and 1-1/2" rubber tires -- 402.6

Mr. Mragemerge,

# REGORD OF TERT RUN OVER SELECT COURSE IN #2 DELIVERY WAS ON WITH NEW PRONT AXLE HEAVIER RUBBER TIRES ON REAR WHEELS AND STEEL TURES SHRUNK ON FRONT WHEELS

MILES
DATE RUN NO. PER TRIP HOURS MIN. REMARKS

Oct. 30 45 16.4 2 25 One of the pine which holds steering connecting rod to knowle sherred its cotter and came out while going full speed on Bloomfield Ave, Montbalar: Would have been run into by trolley only for motorman's quick satisfaint an applying the brakes to his car. Steel tires at the to hammer out on front wheels, elthough they are fairly tight. Spokes in left-hand wheel shows signs of loosening. The left-hand wrones bushing is out out pretty bad and has considerable play.

Oct. 30 46 16.4 2 45 The tonneau was stuck right on part of the test course and driver of wagon stopped to help fix it.

Oct. 30 47 16.4 2 40 Trip on speedometer got stuck and would not register; stopped to fix it.

Oct. 31 48 16.4 2 25.

" 31 49 16.4 2 25 Ende sh attempt to get in two regular runs Monday morning, but could not, as ell the cells were discharged Saturday night, and one to the current shutting off at 12 P.M. instead of a A.M. the next morning, the cells only got about five hours charge and would not complete the course.

This test has shown us that it will be necessary to double and instead of being held and instead of being held the state of the held and instead of being held such pin and a by only a cotter, a thread with the state of the pin and a nut put on locked with a country. These pins will be made as soon as possible so as to be ready to replace the present ones.

The chrome nickel steel rollers are now here and the shaft is being completed.

Two of the battery cases and a platform truck are completed and will be put in service as soon as the casters are attached.

A layout for a new steering arm will be started tp-day and made up as soon as drawings are completed.

Tital nucle on sinvel grave 811 " rubben time 4846 Total " on new front cale and 1.1/2" rubben time 4846

140

# RROGED OF TEST RUN OVER SELECTED COURSE IN \$2 DILIVERY WAS ON WITH HEN FROM AXLE HEAVIER RUBBER TIRES ON FROM WHEELS AND STRUL TIRES ON FROM WHEELS

DATE RUN NO. PER TRIP HOURS MIN. REMARKS

Oct. 31 50 16.4 2 20 The links in motor chain pulled apart and broke. Had to put on solid pin chain again.

Oct. 31 51 16.4 2 15

\* 31 52 10.4 3 50 At Bloomfield Aye. Silver Lake solid pin motor chain broke. Bed to be towed book to Laboratory. After erriving at Laboratory a close inspection was made of the various parts and so found the angle from framework broken through where it unsupponds from recer excles.

A new angle iron framework is being pushed through, built on the same lines on the broken one, but supported everywhere through rubber omenicating, all of the parts, such as jook haft bearings, meter etc. will also have this rubber put in with the mounting.

The new chrome nickel steel rellers and hardened shaft will also be put to an an this frame.

Some of the other changes will be as follows;

let - Motor supported in a direct line of the chain strain, thus eliminating the leverage on the bolts holding it down.

2nd - A change of sprocket sizes to prevent the excessive strain and tremendous wear on the motor chain.

3rd - A new and substantial steering goer; one that will stand steering through deep sand.

4th - Good Phospher bronze bushings in the wheels; the last were ordered bronze, but preved to be only composition.

6th - The new pavement block front wheels. If these wheels are not finished by the time the rest of the wegen is, the test will be started on the regular steel tired ones.

6th - The new battery boxes with a plugging device attached, [now ready] facilitating the changing of cells, bringing down the time of change to a minimum and promoting the battery from extreme low temperature

We will try to change the present motor hoofs to take a ball bearing, as it will delay out tests to wait for the new cartings. If this change common the made in the short time we have, it be will be necessary to lot the motor go with the plain bronze bearings.

I have been trying to got an estimate of the time it will take to finish the wagon through the various departments and find that it will probably term be now fueled by Wednesday, Hovember 6th, before it will be ready for test.

The total mileage through which various parts of wagon lasted before being taken down, are as follows:

Control frame		.447.00					
PATANT TTOOLO		#	TART	will	continue	on	same
	527.8	**		***	"	"	"
New rear wheels and tires			**	**		**	**
Denw avia	1604.4	**		**	**		**
Internal Expanding Brakes		17	99	**	"	11	**
Mak are	1604.4			**	**	11	**
Controller	1604.4	11	11	11	**	**	**
Differential							
Differential Sprocket	1860.						
All other sprockets	1604.4		***	**	11	n	**
	1604.4						
Solid Pin Chain about	1300.						



Orange

THE DELAWARE, LACKAWANNA & WESTERN RAILROAD COMPANY,

OFFICE OF GENERAL SUPERINTENDENT,

T. E. CLERKE

SCRANTUN, PA. November 4, 1911.

20889:

Edison Laboratory,

Orange, N. J.

Gentlemen:

With reference to your letter of 18th ult., I will ask you to read the two communications attached from our Engineering Dopartment at Hoboken, which if not eatiefactory, I will appreciate any further information from you.

It is assumed, apparently, that the basis of your complaint is the incident occurring to an automobile which you say became wedged between the rail and planking in the crossing at Scotland Street, and which our people believe was due to careless handling rather than inferior condition. As you know, we can hardly be expected to provide for each exigencies. If, however, the assumption is incorrect, I shall be pleased to continue the investigation.

### [ATTACHMENT/ENCLOSURE]

HE DELAWARE, LACKAWANNA & WESTERN

ENGINEERING DEPARTMENT

Er. A. J. Neafie, P. A. E.,

Dear Sir:-

In regards to the attached correspondence covering Scotland Street Crossing, Orange, N. J., about the crossing having an opening between the rails and the plank, which will allow automobiles to get in between plank and rail.

I will state, that I went there and looked at this crossing and find that the plank is groved and fits tight in the throat of the rail which will allow no cars to get in between the rail and the plank what.

I asked the gate tender about this and he stated that the man run his automobile down the track off -- the end of the crossing and he helped found the automobile wheel from the track, which if he had been attending to are business, he would not have run off the end of the

Yours tru

K. Kuslead

## [ATTACHMENT/ENCLOSURE]

Form P. A. E. t-A 3-11

THE DELAWARE, LACKAWANNA & WESTERN RAILROAD CO.

Office of Principal Assistant Engineer.

\_\_\_\_\_

Hoboken, N. J., ctober 25, 1911

Mr. F. Kierstead,

Roadmaster.

Dear Sir;

Herewith please note correspondence covering Scotland
St. Crossing, Orange, M.J. Tt would seem from this correspondence that there is an opening between the rail and the plank. Lock
this crossing over, place same in A #1 shape and advise me as to
its condition.

I note by letter attached that automobile wheel was fast in the opening between rail and planking. If it is possible for an automobile wheel to become fastenedbetween the rail and the planking there is something radically wrong there. Render me report.

Yours truly,

AJN. O

P. A.E.

#### REPORT ON PROGRESS OF REBUILDING

#2 DRLIVERY WAGON

The frame, jackshaft and oprocket cutting is completed; also ball-bearing notor with new supports. The new differential sprocket will held up the complete accessing as we have sent it out to be case herement to 1. A Williams & Co. of Brooklyn, and will get it hack standay, loveder 12ch williams & Co. of Brooklyn, and will get it hack standay, loveder 12ch facilities to the control of the contr

There are several tests I want to make, such as watts per ten mile, speed ste, and those will put the endurance run off until Wednesday.

We will not wait for the new steering gear to be finished, but will stach same when ready; the design for this steering gear is nearly completed.

All of the machine work and assembling (excepting electrical commentions) is in charge of Mr. Ficelai.

The forging for the wood block wheel has been condered from isologenil & Potter of New York-and will be shipped none title next week. I will look after the wooden parement blocks and have them reedy to assemble on wheel. The sadurance run will be made on the utsel tired wheels until wood tired wheel is completed.

Nov. 15th, 1911

Mr. T. A. Edison:-

The attached prints show the condition of part of our Endurance Test Course on Bloomfield Ave. Just below Montolair. It will probably be impossible to go through this place for a month or two, therefore it would be best to pick out a new stretch/

Will you go over the course and see what can be found, or shall I try to locate a rought road?

JTO/ES J. T. Chesler Jungoover of Afund a



## [ATTACHMENT/ENCLOSURE (PHOTOCOPY)]



NOV 2 0 1911

Bliss 
Sworld like to have the
drap taken on my Inderson
Vehicle, wellen going up
Engle Rock Hill with z persons
Wart drap around Field,
Commutator, wiring, Contraller
& Belleny 
Mo hung about it but
when you can

# PRELIMINARY TROTS OF #2 DELIVERY WASON WITH "SHOCK PROOF" PRAME AND BALL HEARING MOTOR

over eix hours at normal speed to case up and run for bearings, which were rated to case up accident bearings, which were rated as the same up to the sessenhind. Severating holdmark and whoels at a motor speed of 1400 revolutions per shutes.

The following are the figures on friction losses without load:

	RATTS		H.P.
Motor running free at 1400 rev. per min.	140	or	/187
ohain (motor speed 1400 R.P.M.)	580	•	,777
Motor running jackshaft with roller chain (Hotor speed 1400 R.F.M.)	440	*	.589
Motor running jackshaft & drive wheels with solid pin chain on motor and roller chains on wheels (Notor speed 1400 R.P.S.	.) 710		.938
Neter ruming jackshuft & drive wheels with relier chain on motor and wheels (motor speed 1400 R.P.N.)	570		.764

From the foregoing you will note that under the best condition (roller chain) there is 300 metted for a horse power lott between motors the shocket. Whether this loss of the shocket, the shocket whether this loss of the shocket and the shocket is the The greater loss in soil of pin chain showed up in three tests we have made and there must be more friction or drag on that type of chain.

The hourings on jackshaft were whifted about to find an easier running point, but the alignment rade very little difference.

rill be suited for the wagen jackshift. The derivation of the shed and the treemden momentary strains (in my opinion) equashes the springy roller and creates a measurement return of the best of the shed of a plain beauting.

Watts per ton mile test in #2 Delivery Wagon with "shock-Proof" frame and ball bearing motor. 16-A 8 "Edison" cells.

#### ROLLER CHAIN ON MOTOR

TOTAL WRIGHT INCLUDES DRIVER	AVERAGE VOLTS	AVERAGE AMPERES	MILES PR.HR.	WATTS PR. TON MILES
1.495 tons	18.79	121.07	9.89	153.79
(800 lb. losd)				

We started to tow wagon to course with full load in cells, intending to run gas voltage off near the course, but the tonnean would not pull us up the hills so we had to continue on our own power and make out test; this brought our running voltage down to 18.79.

Coming back about moon from the test course the wagon batteries were put on charge for a boost; the enclosing cover on battery box was not removed. The gases collected and pushed one of the taper plugs, which makes connection to cells, out, causing an are which ignited the gases, exploded the battery box and demolished the roof of the wagon. The wagon will be in condition again to-Morrow morning for the balance of tests to be made.

Nov. 24th, 1911.

#2 DELIVERY WAGON ENDURANCE TEST ON SHOCK PROOF FRAME RUNS MADE OVER SELECTED GOURSE

Four runs were made over the course, a total of sixty-eight miles; at the start of the fifth run, while coming down oberry St. the front wheel of wagon struck a boulder measuring about 8 or 9" in diameter. The shock broke the angle iron frame from the rear axle and let the motor down to the ground. No damage was done to the running gear or motor.

The frame will be re-inforced at those points, and special attention will be paid to reducing the number of holes drilled through the angle iron.

Dec. 12thm 1911

#### TRIAL RUN ON #2 DELIVERY WAGON WITH HEAVY ANGLE IRON SWIVEL FRAME

Ran wagon down to level ocurse on Washington Ave., Howark, and took a watts per ton mile test. The roads going down were very hoavy and, therefore, the test was made with a partially discharged mattery.

#### The results are as follows:

TOTAL WEIGHT	AVERAGE	AVER AGE	MILES	WATTS PER
INCLUDING DRIVER	VOLTS	AMPERES	PER HOUR	TON MILE
2838.5 lbs.	19.25	85.24	8.2	141

HOFE: -- This test was made with a 65 turn ermature, which was put in motor to get a comparison.

The 35 turn ermature test made Nov. 21st shows the average volts AVER-GRS AMES, HILL-FR-SH. WATTS ZER ZEM HILE TEST.

The 33 turn arrature test also had the advantage of good road conditions.

The 33 turn armature would be all right if it could be operated at very high speeds, but we are limited by chain losses due to high speed.

shout 400 or 500 R.P.M.; this slow speed outs our power down too much; we are, thorefore, completing a 51 turn errature wound with square wire, which will increase our section of copper considerably and raise the speed to working continue will provide will be taken. In the meantime we will start our regular endurance runs to test chassis, wheels, sto.

The endurance runton #2 Delivery Wagen, with heavy frame, was etarted this morning, and out of six runs around the course, the wagen was stalled three times and had to be towed in. -- Even emitting the had mid in Scotland Street, the runs could not be completed.

The reason for this poor showing may be due to a low percentage of potach solution in the bettery. Mr. Smith is looking into the matter and will make a tent on some of the cells.

The six runs made, total only 70.4 miles.

The front axis just outside the right hand spring is bent, and will have to be taken out and atraightened. The axis will have to have still heavier re-inforcesent at those points if it is to be made of Norway fron.

No bolts or muts loosened or broke off from any part of wagon and equipment during the 70 miles of test.

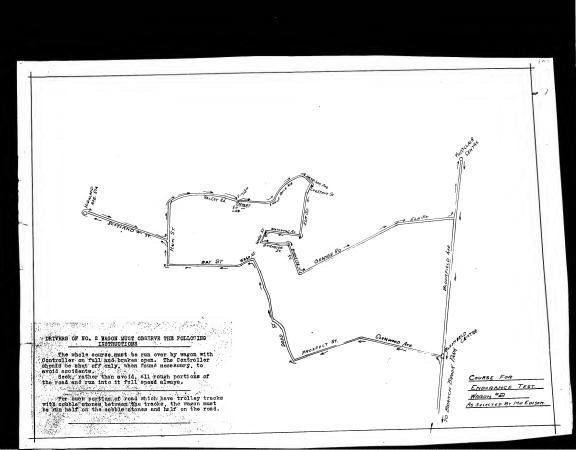
take 10 angers less than the last it did on the last frame. The current at pone points in scotland St. Jos up to 400 angeres for a few seconds and 300 and over 300 amps for several munitio.

December 28th, 1911.

## RUN OVER SPECIAL COURSE

Three runs were completed, a total mileage of 46.8. At the end of third run, the board to which front aplings and axle is anchored, split. This strain is no doubt due to the front wheels striking a high cobble, which tends to stop the wagen and the enertia of the body heavily loaded which keeps on moving, thus straining the anchoring places.

Two tie rods (one on each side) will be run from rear axle to top of front spring to help hold the body from moving forward.



#### Edison General File Series 1911. Battery, Storage - Delivery Wagons -Horse-Drawn Wagon Costs (E-11-13)

This folder contains correspondence and other documents relating to the commercial and technical development of Edison's alkaline storage battery and its use in lightweight electric delivery wagons, included is data from a survey of the operating costs of horse-drawn delivery wagons, conducted under Edison's supervision by his assistant William H. Meadowcroft. Among the participants were Bloomingdale's, Borden's Condensed Milk Co., R. H. Macy & Co., and Saks & Co. in New York City, Abraham & Strauss in Brooklyn, and L. Bamberger & Co. and Hahne & Co. in Newark. Also included is a sample of the letters of introduction sent to would-be participants.

Less than 10 percent of the documents have been selected. The items not selected consist of duplicates, additional correspondence with participating firms, and questionnaires containing raw data.

C. Lambert, Esq., Paterson, H. J.

my dear Mr. Lambert:

I am obtaining for Mr. Edicon some data relating to the cost of operating and maintaining different classes of pleasure and family vahicles in various localities, including automobiles, gasoline and electric, and horson and correlate.

knowing, as I do, that you use a team, of horses and several horse-drawn relation, I have wondered whether you have been in the habit of keeping any secount of their senual sypense, and e.e., ehether you would be willing, or consider it too much of a bother to favor me with some figures showing approximately what it would cost to maintain such an sufficient

Mr. Edison's desire is to show, if possible, which the cost of maintaining and operating an electric vehicle for ell family purposes will not exceed the exponse of horses and contrige, while the possible milases will be much greater. Hence, in showing comparative flares the first cost of the outsit is to be contacted flares and the contact all contributions of the contact all contacts of the cost of

on the sids of the electric he would also figure the cost of current for charging, the wages of a chanffeur, oil, repairs, new tree and repairs on old tires, and in fact all expanses that can be foreseen, including a liberal allowance for incidential.

In the case of horses and cerringo, bostdes considering a precentage for depreciation, his idea is to include wages of conchans and stablesan, feed, bay, strew, shosing, veterinary, repairs and renewals on harness or cerringe, with an allowance for incidentals.

As you may surmise, Mr. Edison intends to use this information in a booklot which is being prepared for the benefit of persons considering the purchase of an elec-

C. Lambort, Esq. Page -2-March 3rd, 1911.

trio vehicle. It is not his intention, however, to publish the names of those who have given him information, or data, so you may rest assured of its being regarded in a confidential light.

I know that you are a very busy man, and that I am taking a liberty in asking the information of you, so in case you feel in any way displacined, or if you are too busy to furnish it, please do not hesitate to so advise

Yours very truly,

Cablo Address "Edisons Nav York"

Trom,theLaboratory Thomas A. Edison, Orange,NJ

Gentlemen:-

I am developing a cheap and effective small electric delivery wagon, and desire to ascer-tein the actual costs of delivery by horse-drawn wagons.

Who will present this letter, has been sent by me to various concerns to ask for such osets are date. The information thus obstined and shown to you by assistant, but without revealing masses.

I am giving this general letter to ing this data so that he can so shead collect-ing this data so as to have it ready for me on my return from Europe. If you can see your way clear to furnish suln costs, it would aim me greatly.

Yours very truly,

Cablershitress "Edison Swillork" The A. L.

Trom the Laboratory Thomas A. Edison,

Orange, N.J.

How many single wagons?

How many double wagons?

" horses, including extras?

Taking the store or other point as a centre, what is the average greatest radius of delivery per wagon?

How many deliveries will each wagon average per day? Average distance covered per wagon per day? Cost of wagon, single

- " " double
- t t horse

" " harness, per set

Repairs per wagon per year

" harness " "

Veterinary, per horse per month

Shoeing per horse per month

Stabling per month, per horse, including feed, bedding, etc.

Stablemen and helpers per year, (total)

Depreciation on wagon, per year

- " horse "
- " harness " "

  How often per day do wagons return to store for loading up?

How long a time is spent in loading?

About how many hours per day is taken for deliveries?

What is the weight of average load?

If practicable, please state annual rent of stable for horses only.

B. S. Warkers

July 26th, 1911

John Claflin, Esq.,

· New York.

Dear Mr. Claflin:

I am developing a cheap and effective small electric delivery wagon to take the place of the one horse delivery wagon.

be met I framed a liet of questions relating to conditions that are to exy. I sent my assistant, fir. W. H. Meadoweret, with letters of introduction to a number of concerns in various times of business, asking them to assist me by answering these questions, with the understanding that any information furnished would be regarded as strictly-confidential.

will show you a tabulation of the data thus far obtained, which has been furnished by all the concerns to whom I have applied except one.

York, Mr. Mendowordt called at the O'Meill - Adams store, presentent lates and saw Mr. Hahme. He said that the trucking for that and upper other stores controlled by the H. B. Olaffin Go. was attended to under one department which was in charge of Mr. W. C. McGee to whom he gave my assistant a note of introducts.

the 17th St. stables and presented the letter. Mr. McGee at the questions and said \*We will not furnish the information.\* and tore up the letter of introduction and threw it in the waste backet.

If Mr. Modes is an independent operator doing your delivery work under contract; I presume it is within his privilege to refuse information. If, however, he is simply in charge of delivery for your Company I don't suppose his decision would be final.

What I am aiming to do is to provide a more economical and satisfactory method of light delivery service, and it

John Claflin, Eeq. Page -2-July 26th, 1911.

eccms to me that the interests of the merchants and my own meet on mutual grounds. With this idea in mind I am acking a little cooperation in order that I may have a fair idea of the conditions which at present exist and which I hope to improve.

If, therefore, you are in sympathy with my object, and deem it proper to aid me, I shall be glad if you will kindly have the enclosed queetions answered and the paper forwarded to me at Orange.

I am sorry to take up your time with such a long letter.

Yours very truly,

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					- 20	62	6	1234	7	52	18	38	30	- 11	18
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horses, including contras	8			10#	. /			1 '					5 miles	4 miles	. 5 m
		2 miles	8 miles	5 miles	4 to 5 miles.	2 miles	4 miles	any 1 mile	_ 5 miles	4 to 5 miles	4/2 to 5 miles	7 -		250	/23
What is radius of delivery per wagon, wigo -	4 / miles		- S-mins	50	60	150	120	228	50	100	80	176.	100 5 125		15 143
How many deliveres per wagon par day	60	60	16 miles	10 miles	10 to 15 miles	. 20 miles .	15 miles .	8 miles .	15 miles	20 miles	20 miles	17 miles	15 miles	12	/3 ***
Average distance covered for wagon for day	15	15 miles	_/B				1	16			\$250	280	4300	4 235	240
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harness	50 cant	. special	60 auch	25 ando	50 couls	25 auto_		25 auto	11.00	35 cents .	13.00	12.50		* 2.	
Velorinary for horse per month	2.50	2.50	43.00	#2.25	*2.50	\$ 1.66		1.75	4 15	112 50	25.00	4/3 50			111
Showing	* 18		415	\$ 15.50	4 /2 75	14		*15	4.1550	4.050	- 2,300	16,000		41.144	\$5,1
- Feeding	729	17800 -	\$ 1380	1.950	13,000	7,000	+	appros. 99.000	(350	7.000			<u> </u>	1 ;	
Stablemen from year	/14							+	10%	10%	15%	20%	164 %	6%	. /
The second secon	10%	10%	20%	71.7	127-	15%	15%	15%	10%	15%	20%	20%		67-	2
Depuceration on wagon	10%		107-	7/2-7	127	107-		15%	10%	57.	25%	20%		6.7-	2
Renc	207.	1 1 .	25%	7/1/2	12%	15%	<del>                                     </del>	13.70	1			1.			-
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to store for loading up?				1	11/10	10 minut	4 / Rous	5 minute	1 hour.	1. Row.	26 minute	45 1	30 minus	/es 10 minus	tes 1/2 to
How long a time is spent in loading?	7 1/2 du	- 1 Kom	15 minutes	1 France	1/2 hours	10 munus	7								-1 1
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About how many home per day is		<del></del>	-	8 Rours	10 Gens	9 Cours	81/2 Rom	6 Cours	7 Rome	9 tours	_ 7. Rous	6.60	8 Rome	1 1	04.
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bost of operating wagon per year, wicheding dies -	1142	13 63				9%	33/6	1617	117	69.71	7	56,			5/
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H. Borden Mick Co. New York 7. Me Crevy 18 Telebrugh  J. S. Scheuer & Sons Newark AA Joskin Dry Goods G. Deener  J. Habne's B.B. Montgomery Fair Montgomery &  K. Bryston's & Goods's  L. Bambugar's  M. L. S. Plant & G.  N. Roseland Dairy East Grange  O. Saks & & New York			Brooklyn
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#### Edison General File Series 1911. Battery, Storage - Delivery Wagons -Lansden Company (E-11-14)

This folder contains correspondence and other documents relating to the business of the Lansden Co., a manufacturer of electric wagons in which edison had a controlling interest. Included are expense and revenue statements, along with inquiries regarding employment, sales agencies, and customer relations. Some of the letters mention the resignation of general manager John M. Lansden, Jr., and his efforts to establish a new company called the John M. Lansden Manufacturing Co. The correspondents include Frank L. Dyer, president of Thomas A. Edison, Inc., and vice president of the Edison Storage Batery Co.; Robert A. Bachman, master machinist at the Edison Storage Batery Co.; Robert A. Bachman, master machinist at method to the Company of the Edison Storage Control of the Edison Storage Satery Co.; Robert A. Bachman, master machinist and Boston; Ira M. Miller, Edison's brother-in-law, and John H. Vall, former chief engineer of the Edison Electric Light Co.

Approximately 60 percent of the documents have been selected. The material not selected includes an compilation of unidentified expenses covering the period 1888-1890.

## The Lansden Company Electric Magons

54 & 56 Lackawanna Avenue

Newark, N. J. January 9th, 1911.

Mr. H.F. Miller, Auditor.

Dear Sir:

Referring to telephone communication of the 7th inst., we are enclosing herewith summary of total amount of expenditures, also summary of total amount of anticipated receipts together with recapitulation shawing that our cash requirements for the balance of the month ending January Slet, 1911 will amount to \$11000.00 over and above the \$6000.00 which we are to receive to-morrow the 10th inet., \$5000.00 of which is required at once, \$5000.00 on the 20th inet. and the balance, \$3000.00 on the 31st inst.

Trueting you will give this matter your immediate attention for which we thank you in advance, we remain,

> Yours very truly, THE LANSDEN COMPANY

Treas.

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SUMMARY OF CASH DISBURSEMENTS FOR THE MONTH ENT	
Aome Drill Co.	2.58
The Berger Manufacturing oc.	108.15
The Barlow Foundry Co.	45.12
Baldwin Chain & Mfg. Co.	300.00
Rattes & Ebsen	5.30
Briscoe Mig. Co.	47.25
Briscoe Mfg. Co. The Billinge & Spencer Co.	146.20
Brown-Lipe Coar Co. Edward V. Brokaw & Bro.	342.40
Edward V. Brokaw & Bro.	16.25 45.00
Cary Spring Works The W.T. Crane Carriage Hardware Co. James A. Coe & Co.	344.82
The W.T. Crane Carriage Hardware Co.	4.13
James A. Coe & Co.	10.80
The Greeky Company Department of Water	75.00 approx.
Department of Water	6.10
Diamond Rubber Co.	17.66
Driver-Harris Wire Co.	41.39
Electric Motor & Equipment Co.	89.66
The Electric Velding Products Co. Joseph F. Eberhard & Son Inc.	17.34
Joseph F. Eperhard & Bon 180.	4153.18
Edison Stronge Battery Co.	7.81
Empire Auto Supply Co.	12.00
Tredingilal & Melal Company	236.21
Empire Rate Samply State Co. Faitoute Iron & Steel Company Peter A. Frasse & Co. The Firestone Tire & Ruber Co. The Firestone Tire & Ruber Co.	201.42
mb. Biroctone Mire & Rubber Co.	749.51
Freight Handlers' & Railway Clerks' Journal	15.00
General Electric Company	5354.52
C. A. Goldsmith	277.20
	544.72
The Halle Bros. Co.	18.75
The Halle Bros. Co. Edmund F. Heath & Son	73.33
George Healy The Hess-Bright Manufacturing &.	3.90
The Hess-Bright Manufacturing Co.	36.10
S. B. Howard	170.00
S. B. Howard T. P. Howell & Co.	157.42
U.T. Hungerford Brass & Copper Co.	30.53 20.40
Hyatt Roller Bearing Company	5.35
J.J. Hookenjos Co.	77.60
Industrial Wire & Metal Works	9.88
International Engineering Co. International Time Recording Co.	2.00
International Time Recording Co.	6.00
H. A. Jaeger	21.85
Phineas Jones & Co.	121.40
William A. Jones & Son W. H. Kemp Co. Kauffel & Esser Co.	17.40
Vandfal & Eggar Un-	13.70
The Kuebler Foundries Inc.	462.20
Lebanon Steal Casting Company	549.24
	34.20
Lybrand, Ross Bros. & Montgomery	103.14
Manhattan Electrical Supply Co.	9.49
Massachueetts Chemical Co.	15.00
Murphy Varnish Company	48.79
Nanz Clook Company	2.60 .
The New Departure Mfg. Co.	20.30
New York Telephone Co. The National Saw Company	67.30 8.77
The National Saw Company	35.28
Newark Glass Co.	119.09
New York Transportation Co.	8.14
Euge ne E. Nice	5.50
The Neera Manufacturing Company	175.88
Charles R. Partridge Lumber Co.	325.00 approx.
Public Service Electric Company CARRIED FORWARD	915992.25
CARRIED FURWARD	AT01.20

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	Brought Forward-	15992,25
		59.27
	Publice Service Gas Company	88.52
	W. Peterson	8.58
	Rising &BThorne	
	Roe & Conover	195.42
	Royal Ribbon & Carbon Co.	29.29
	R. E. Rodriguez	3.60
	Sangamo Electric Company	432.00
	Shaw & Potter	27.10
	Singer Sewing Machine Company	5.89
	Standard Oil Co.	9.41
	Thomas A. Sanford Co.	3.06
		9.00
	The Standard Welding Co.	492.10
	Spring Perch Company	
	The Schwarz Wheel Company	525.18
	The Scoville & Peck Co.	10.50
	J. H. Sliker	8.25
	Frederick N. Sommer	2.70
	The Tea Tray Co. of Newarsk, N. J.	6.71
	Thlar, Hart & Co.	41.20
	United Manfuacturers	3.38
	The Veeder Manufacturing Co.	131.85
	O. T. Vogeler & Son	11.71
		988.00
	The Wagner-Field C o.	426.21
	The Whitney Mfg. Co.	333.44
	Magnus Wilson Company	
	Joel H. Woodman	217.33
	Orlando W. Young	3.48
	Estimated Pay Roll for January 20th	2500.00
	Estimated Salaries for January 31st	4200.00
	Estimated Petty Cash Expenditures	1500.00
	TOTAL ESTIMATED AMOUNT OF EXPENDITURES	928265.43

SUMMARY OF ANTICIPATED RECEIPTS FOR MONTH ENDING JANUARY 3let, 1911.

OF WELLCIENTED WRODITIED FOR HOMES I	
Abraham & Straue	38.01
Abraham & -traus	8.85
The Aome Garage	39.90
Adams Express Company	1540.73
Adame Vehicle Company	3.00
The Arlington Company	1.50
Bellevue & Allied Hospitals	2.85
California Electric Garage Co.	27.55
Chamber lin Auto Company	6.00
Carew Manufacturing Co.	3.60
Columbia Storage Warehouses	70.64
Edison Chemical Works .	27.67
Edieon Phonograph Worke	53.20
Fairfield Dairy Co.	18.35
Federal Storage Battery Car Co.	.76
Firestone Tire & Rubber '0.	
Robert Gair Company	10.00
Robert Cair Company Green Car Sight Seeing Co.	7.25
Hamburg-American Line	39.35
A. G. Hyde & Sons	14.15
R. H. Macy & Co.	319.11
Mandel Brothere	2000.00
John G. Myere Co.	4.50
F. J. Newcomb Manufacturing Co.	8.00
New ork Telephone Company	15.45
New York TransportationCompany	11.50
New York & Spr ingfield Despatch	19.16
Siegle Cooper Co.	28.05
Julian L. Street.	60.60
J. H. Small & Sons	3100.00
Spaulding & Company	135.00
Steinway & Sons	61.01
Oscar Tamms	95.10
United States Express Company	22.80
Walls Fargo & Company Express	186.13
The Williams Printing Company	3252.25
Winchester Repeating Armae Co.	34.50
Wright-Dickinson Hotel Company	3500.00*
TOTAL AMOUNT OF ANTICIPATED R	ECETPTS \$14766.52
TOTAL ABSOURT OF ARTIOTEKIND K	30111111

#### RECAPITULATION

The Bank Balance will be after we receive the \$6000.00 check to-morrow, January 10th, 1911-- \$5489.27 Total amount of anticipated receipts 14766.52 Total amount of anticipated receipts Total estimated amount of expenditures
Total amount of oash required for balamoe of month ending January 31st, 1911,
exclusive of the \$6000.00 to-morrow \$28265.43 \$28265.43 \$28265.43

NOTE:-

NOTE: The above estimate is based on the assumption that we receive the Wight-Injohanon field. Company's obsact of \$5500.00 (which is more or less Southful, also does not make any provision for carrying may bank belance which should be at least \$1000.00, making the total amount of cosh about \$11000.00 providing we get the above mentioned oheck. oheck.
Amount of each required at once-- \$5000.00
Amount of each required 20th inst. 3000.00
Amount of each required 31st inst. 3000.00
\$11000.00

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## The Lansden Company

ARIOUS TYPES FOR COMMERCIAL NO PASSENGER SERVICE, THE DISON STORAGE SATTERY EQUIPMENT Electric Wagons

Newark, N. J. December 14, 1910.

Hound

Mr. Laneden:

Inasmuch as we have been muching up parts at a rate in excess of the sales and deliver es, it will be necessary to settle our accounts payable on the basic outlined herein, in order to maintain present oredite.

Operating conditions and the delay on battery deliveries haw prevented the shipment of a number of wagons that could have been realized upon before this time.

As you will note, we now have on hand and in stock, materiale and supplies, orders in process and machines representing a <u>total outlay</u> of about \$140,000. The disposition at the indicated selling rate will more than effect our net condition.

Our each requirements for this month will be about \$21000, and attached are the summaries showing the total amount to be paid in December, which is \$35545.64 and alec total amount of anticipated receipts, which is \$12692.53, based on the assumption that we receive the Clds Wortman & King, which of course is more or less doubtful on account of the dietance the cars will have to travel before arriving at their destination: The difference beigg, between the total amount to be paid and the anticipated receipts, the amount of \$20861.11, as shown by summary at bottom of one of the enclosed sheets.

SHEET 2

Mr. Lansden

12/14/10.

We are in immediate need of at least \$10000 with which to meet obligations promised for payment on Thursday, 15th inst., \$5000 on or about the 22nd inst. and the balance at the close of the month.

Seoze S. Freewar!

V	
tome Drill Co. Inc.	6.78
Aome Drill Co., Inc.	8.19 182.50
	77.00
Reeder, Adamson & CO.	5.15
Relear Printing CO.	81.85
Boston Electric Garage Co.	23.27
Banister & Pollard Co. The Barlow Foundry Co.	223.33
Baldwin Chain & Mfg. Co.	401.50
	64.25
Briscoe Mfg. Co.	23.60 207. <b>6</b> 5
The Billings & Spencer Co.	772.02
Brown-Lipe Gear Co.	37.44
Briscoe Mfg. Co. The Billings & Spencer Co. Brown-Lipe Gear Co. John Boyle & Co. Inc. Edward V. Brokaw & Bro.	48.75
Cammell Laird & Cc. Limited	2.25
The Carborundum Company	22.33
Cary Spring Works	11.36
Conten White Lead Company	36.25 14.40
mu dincinneti Rell Crank Company	25.00
The Critchley Machine Screw Company Centaur Motor Company	43.50
Centaur Motor Company	12.02
Continental Fibre Company Commercial Photo Co.	9.70
Albert C Courter & Co.	13.04
a a • 0a	158,12
Peter Cooper's Glue Factory E. L. dottell, Inc. Department of Water	15.00
E. L. Cottell, Inc.	6.50 66.13
Department of Water	9.01
Deforge Belting Company John Desch	146.00
John Desch	.50
DeVoursney Bro's R. E. Daets Company	9.60
Driver-Harris Wire Co.	75.57
William H. Riwards	250.80
The Electro-Dynamic Company The English & Mersick Co. The Fairbanks Company	2.64
The English & Mersick Co.	38.94
The Fairbanks Company	77.00 467.12
raitoute from a Steer Company	98.25
The Fairbanks Company Faitoute Iron & Steel Company Petor & Frasse & Co. General Electric Company	7018.99
	976.74
Græbe-McGovern Company Hardinge Bro's	105.25
Hardinge Bro's	2.64
Edmund F. Heath & Son George Healy	350.99 7.25
George Healy	38.85
Heller Brothers Commany S. Hoffnung & Co. Limited	5.58
The F.W. Horstmann C o.	46.80
Homar Brass Works T.F. Howell & Go.	317.65
T.P. Howell & Co.	63.30
	130.07
Industrial Wire & Metal Works Phineas Jones & Co.	57.55 15.00
Phineas Jones & Co.	65.00
Jones & Lamson Machine Co. William A. Jones & Son	755.68
Keuffel & Esser Co.	34.34
The Kuebler Foundries Inc.	481.12
Lebanon Steel Casting Company	1172.22
Ludlow & Squier	13.77
Lybfand, Ross Bro's & Montgomery The E.R. Merrill Spring Co.	102.40 55.40
The b.d. Merrill Spring vo.	86.07
Michalin Tire Company. Miller & Company	324.53
The Millers Falls Company	- 25
Murphy Varnish Company	304.15
Motor	9.00
The National Lock Washer Co.	39.28
	\$ 16353.58
Carried Forward	* 20000100

9	
Brought Forward	\$16353.58
	14.10
Newark Gear Cutting Machine Co.	57.55
NewYork Telephone Co.	27.53
The National Saw Company	19.64
Newark Glass Co.	105.65
New York Transportation Co.	3.90
Newark Glass Depot	68.75
The Pantagote Company	914.72
Charles R. Partridge Lumber Co.	23.23
Patriarche & Bell	334.72
Public Service Electric Company	143.51
W. Peterson	2.00
The Power Wagon	4.75
Radium Steel Company	89.85
Rising & Thorne	
Dec & Conover	718.70
Robert L. Ross, Receiver 1st Taxing District	289.50
Rogers & Company	803.25
R.E. Rodriguez	63.05
Sangamo Electric Company	549.00
Searls Manufacturing Co.	2.85
D. F. Segelke	30.80
Shaw & Petter	6.95
Singer Sewing Machine Company	4.39
Standard Oil Co.	.29.00
Standard Roller Bearing Co.	4.08
Strieby & Foote Co.	43.05
Spring Perch Company	712.28
The H.D. Smith & Co.	21.25
The Sohwarz Wheel Company	464.31
Frederick N. Sommer	10.91
Frederick M. Sommer	15.25
S. A. Stephens	55.00
H. G. Shepard & Sons	6.12
Cornelius Ten Eick	6.00
Trenton Spring Mattress Company	15.30
Irving Underhill United Manufacturers	4,88
United Manuisoturers	8,06
United States McAdamite Metal Co.	160,69
The Veeder Mfg. Co.	23.21
O. T. Vogeler & Son	1123.43
The Wagner-Field Co.	1.28
The Western Union Telegraph Company	4.77
Weston Electrical Instrument Company	
W. A. Whitney Manufacturing Company	24.00
The Whitney Mfg. Co.	393.43
Magnus Wilson Company	693.75
Yale-Princeton Official Sowvenir Program	20.00
Orlando W. Young	7.02
Madison Square Garden Co.	1449.00
S. A. Miles	615.60
Estimated Pay-RollDue December 23rd, 1910	2700.00
Estimated Shaaries Due Decmeber 31st, 1910	3800.00
Estimated Incidental Expenditures	500.00

ated Incidental Expenditures 500.00

Total Amount to be paid in December \$33643.64

62.96 Abraham & Straus 53.40 Adams Express Company 21.21 The Arlington Company Commonwealth Edison Company 38.60 32.35 E. J. Davern Edison Chemical Works Edison Electric Illuminating Co. of Brooklyn 52.74 25.13 Edison Padorra limminating Go. of Brock Edison Phonograph Works Firestone Tire & Rubber Company Globe Storage & Garpet Cleaning Company The Halle Brothers Company 595.78 298.61 9.30 206,27 2598.05 James A. Hearn & Son Lewandos French Dyeing & Cleansing Company 10.00 41.77 John G. Myers Co.
F. J. Hewcomb Mfg. Co.
New York Tekephone Co.
New York Transportation Co. 31.15 13.94 8.50 Olds Wortmann & King Less commission 610.00 5490.00\* The Preebyterian Hospital Rochester Railway & Light Co. 42.95 2.75 12.90 Siegel Cooper Company 95.10 OBOOR Tamm
Wells Fargo & Company, Express
Total Amount of Anticipated Receipts -----\$12682.53

#### SUMMARY

Total Amount to be paid in December 1910-- \$33543.64

Total Amount of Anticipated Receipts----- 12662.53

Total Amount of Gash required for month---- \$20861.11

#### \*NOTE:-

The Above figures are based on the assumption that we receive the check from Olds Wortman & King which however is more or less doubtfulk owing to the fact that the care representing this amount are on their way to Fortland, Oregang which will take acquiderable time before they arrive at their destination. " auto-landolm

## The Lansden Company

VARIOUS TYPES FOR COMMERCIAL AND PASSENOER SERVICE, THE EDMON STORAGE MATTERY EQUIPMENT

Electric Magons 54 & 56 Lackawanna Avenne

Treas.

Newark, N. J. January 16, 1911.

Mr. H.F. Miller, Auditor,

The Lansden Company,

Orange, N. J.

Dear Mr. Miller:

In compliance with your request of the 14th inst., you will find enclosed herewith statement of sales for the six months of June, July, August, Septmeber, October and November, also separate sheet showing the date when the various salesmen were hired.

Yours very truly,

THE LAUSDEN COMPANY Schwar

tonsden Fred Kimball 9. Gens Electric C. State St. Boston, Mass Why down your feeple answer Landden Wegerthy needed Company telegrams about histors.

Longden

NEW YORK

JAMES R. KEISER INC. FOURTH AVENUE NTY-SEVENTH TO TWENTY-EIGHTH STRE

Thay 29-11 Mr. Thomas a. Edison JUN 1-1911 Um 6/14 West Orange My. I lunder stand that Mr. Lameter some time since resigned I lunder stand that 111. " names more more more successful this prairies and that you berson ally harry aniguing the Cauchen to. Never theless it seems to me provided that you are not arrow the all the factions that now others them there, and no I have them all the interiors that now others have you all the second them. tunade to get any both spactions from the G. I address this letter to your and if the maller at season is not one for your Debrond attention, I should be glad to be four in Communica. tion with some responsible person who Knows some they about The matter, which is a towing automobile I and mid the district huser standing that dely to make by april It was refinitely promises for apr 15-20 but as I though here night be Some tour sect of you make the thing which was of feetile some tour sect by feetile doing, I my seef property that he the Contract many I be named design, I my seef property that he the Contract that there next on no is the found date. Whe sometiment was made that there next on no

delay on the chassis as that was princhically the same as the & was turning out right along, as a matter of fact the bady has few writing for the charles for about a month or more. My privace is this. The pertoy has stated our to original motorship the starred without the through the starred motorship that the chances was fact about me attaight forward way that the of themthe admitting the trath in a straight forward way that the of themthe admitting the trath in a straight forward way that the Can would not be officed for acceptance with some 2 mos ofter date promeet that the matter them being god along from well date promeet that the matter than here, to a all account what to write in this way I might perhaps have made other armay sucati as the cir was artered for a specific purpose and the loss of about 1/3 of the whole serson in the country will have occurred type it is rieg. My family have been bry much disappointed. none of my friends experienced in cars approved of my Experthe wirey his a touring Car costing several thousand sollars, particularly as my Country place it at Auntington L. J. a section of hills. Never theless as I let a great deal of confidence in Mr. Lausden - both personely of for his morelety of the presibilities hirolard, I gave the order and there were a good many points that were left siturely to him. As he has been out some time it would seem to have been mit

JAMES R. KEISER INC

Juite poper and businesslike for some one to have seen he who was competent to prin some information, afflice when the some one many supriories for the can I finally for word their some one would call the following morning early. I railed hill 11.45 both on the the following the full man Course during my absence and light word that the delay was Int to Reorganization. Then of course was no sais fection to me, as here are a member of points on which I wreet like definite information before deciding what I will do to this Connection. Frankly the only conclusion I am fraw from the discrepancies Alexen the statements must from time to Time and the facts, is that this for has been neglected in favor if others where the customers were his water.

yours Very July James KKEiser (over)

Hola Mrs Danovan Lays
Whorks will be delivered
New Haven Last June 2-

friend 5 mend bail Mr. T. a. Edisonyo can do nathing Orange hof ment Dear no Edison: I have been informed pomerwhat about present conditions at the Laurden the firing live "all the time, and know the field for future business. I am in touch with , and know the attitude and organizaments of the Central Star tions, also of the Prisiness Public. I know what is needed to develope Electric Valiste humans for begond present conditions. The surface has only been sentited. If you will place me in the beneral management of the les. to build tall way. A, using your betteres, and give me full support morally and financial, I can make it a his ourcess. Then if you don't mant to keep it I can find pasties to buy at the les. yours very truly





# IANSDEN





Perhaps you do not know that the ton-mile operating cost of electric commercial vehicles is far less than that of gasoline vehicles-to say nothing of the fact that the maintenance and repair cost is only a fraction of that of the gasoline car.

Perhaps you do not know that the chances are about five to one that your hauling requires electrics rather than gasoline vehicles. Perhaps you do not know that the operating and maintenance cost of Lansden Electric Wagons is the lowest yet reached by

any commercial vehicle.

Perhaps you do not know that some of these Lansden Wagons have been in service more than seven years, and are operating today on their original Edison Storage Battery equipment.

We have specific information which you ought to have. We will send it or bring it, if you'll phone or write. The Lansden Co., 233-235 High St., Newark, N. J.







Mr. Edison Jain this litter to Hall Bon Today It has think you fil? Long not to have held Grow Taus du & bifor making this for position Sust crosed not frail in

VARIOUE TYPE	E FOR COMMERCIAL AND PARKENCER SERVICE. THE EDIEON STORAGE	EATTERY EQUIPMENT
THE LANSDEN CO. NEWARK, N. J.	Clectric Magaits 1694 WALNUT AVENUE CLEVELAND, OHIO	S, R. BAILEY & CO. AMESBURY, MASS.
IRA M. HILLER	June 21 1911	TELEPHONE NORTH 300
The Halle	Bros Co.	AL WILL SO 9/1
Dear Sir:-		it into contract form

- mande of such contract.

  1 st. You are to purchase and pay for 4 Lansden Vagons 1000 lb.
  egpacity with 60 A 6 Batteries as may be later agreed between
- 2 nd. You are then to turn over such 4 Wagons together with 5 Lanadan Wagons new owned by you ( to be in good endthion) to a Biook Company to be formed by mid till take care of or such 9 Lanadan Company will only the such Company will be such that the care of such 9 Lanadan (35 miles for A 4 nattery Care) and (50 miles for A4 nattery Care) and (50 miles for A4 nattery Care) and (50 miles for A4 nattery Care) price pariod of Five Vecare from September 1st 1911.
- 3rd. You are to pay for such service above mentioned the sum of \$235.00 per month (26 days), per Wagon and make such payments the 5th of each month following the month in which service was resultered.
- 4 th You are to have monthly access to Companie's Records of your service and if there is an excess of charge at end of each year after allowing 10% of operating cost to the Company the same is to revert back to the Halle Bros Co.

Gary

Respectfully Submitted

Youre Very Truly

Your Commande the money on 1269

We don't have

The Commande money on 1269

We don't have

The Commande money on 1269

The

Million

Tour reporter in substance as follows:

"Tr. gameden is on Jury duty in new York and will not be here
"this wake Some time and the property of Fully we will probably
"this wake Some time to the property of Fully we will probably
"this wake Some time to incorporate as The gameden Co., but probably
"this wake A. gameden Heg. Co., who will manufacture as slocking to
"truck on a new design of Hr. gameden!s, the truck on apposite name
"truck on a new design of Hr. gameden!s, the truck on apposite name
"truck on a new design of Hr. gameden!s, the truck on apposite name
"truck on a new design of Hr. gameden Co. Carl, L. Margen, who, was gales"commenced with the Thirtier, sales-manufacture and Cost III is blings his
"manufacture, we have been looking for a fearchy situation of the commenced on yet. We do not expost to interfore at the Carl Carl, and the summand of the "Tennémico" on yet. We do not expost to interfore the left company and we are in harpery with the management of The
"Tennémico".

"Langden Co."

"John M. Tandden Jr: started in this line a number of, years

"Sole Associated with him was his brother levid S. Langden." A

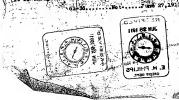
scorperation under a syle the Tandden was formed levid S. Langden. A

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so another land on line Sole of the tentous to dained paid in: Of that

so on our Day's S. Langden Company and the tentous the tentous subsequent of the Company of the C



PRESIDENT'S OFFICE

1839

Mr. H. F. Miller:

July 5, 1911.

on Mr. Lansden. I do not see how there could be any objection to the corporate name of "John M. Lansden Mrg. Co." As soon as you can ascertain the dosign of their proposed truck and the name they intend to call it, I wish you would let me know, because if anything in the way of unfair competition develops we want to be prepared to move quickly.

FID/IWW

. I., D. Jhgr

Out - Landen

July 15, 1911.

Mr. Edison:

I thought probably you wanted to make a barrel of money, so I out this olipping from the Kewark Evening News. I am getting a disinterested party to write News Office Box 75 to find out full particulars. In all appearances this is the new Lansden Company. It might possibly be, as you stated, that the angel has not yet appeared.

Backman

TIIII Park

July 19, 1911.

Mr. Edison:

Replying to your memo; we are plating the strip stock for nickel tube 6/10th instead of 4/10th. Change was made on July 6th. Ribbon for the iron markets, we have made no change, as I understood it was not necessary, they being plated 4/10th.

The other night at the Laboratory
you asked the weights of the different size motors being
used by the Lansden Co., which I could not answer of finand.

Motor #1026 - 60 volt - 40 amperes,,1000 revolutions, weighs 310 lbs.

Motor #1022 - 60 volt, 60 amperes - 1100 revolutions, weighs 380 lbs.

Motor #1027 - 85 volts, 60 amperes - 900 rewolutions, weighs 660 lbs.

Bachman

lug 9. 1911 to see you when much ago last Monday Called Office but you had gone for the day with the taisedon Q and ating How does Truble with Landen, Whitten ve? Do you know of any thing clase for my to do then to shut toguld to glad to lave a spell them Since & Sugar

TELEPHONE FORT HILL 3366.

#### The Electric Wagon Company

Sole Agents for

LANGOTH ELECTRIC WAGONS. EDISON BATTERY EQUIPMENT.

The Lausden Campany, of Newark, N. J.

35 Federal Street, Boston,

Dear Sir:-

Mr. Thomas A. Edieon. West Orange, N. J.

Mr. H. F. Miller, Treasurer of The Lansden Company, has sta to me in writing that you are the sole owner of the Company, and system is writing that you are the sole owner of the Company.

I have been seriously imposed upon by the management of The Laneden Company. I can get no satisfaction from anyone, and so feel that nothing is lott but to state my case to you, although it is with reluctance that I trespease upon your time.

The facts are these:

On March 18th. 1911. I entered into an arrangement with the

and anous are thoses. The third into an arrangement with The Landen Company to act as selling agent. Continuous to the third the Theorem Commercial vehicles prove nothing and are a waste of time and money, Mr. Morgan insisted that two "demonstrators" be ordered and refused to make the arrangement otherwise. Accordingly two wagons were ordered - a 1 ton

and a 2 ton.

"In. Morpan stated that he had a 1 ton wagon on hand, "practically new" which he desired me to take. I agreed without seeing it - unfortunately. When it ones I found that it must have been run many thousand miles. The tires were half worn out, the body old, nough and hactly painted over. I tum neither "practically new" nor lift for a "demonstrator" even if one had been no "little of the wagon and the necessary of the statements and constituted in every magnetiation. and a 2 ton.

eity for its being purchased constituted misrepresentation.

Mr. Morgan simply unloaded come dead stook at an exhorbitant price.

Fig. 1. The meantime I had gone to considerable expense getting ready to pash the sale of the Lansden product. I engaged a capable manager for the agency, hired an office and a men to operate the "demonstrator". Advertising in the papers was started, and a few trucks sold. In the first flush of enthusiass I did not ship back Mr. Morgan's "gold brick" as I should have, but tried to make shift with it. I coon found

that the wagon was dulgs more harm than the wagon was duly more than the magon was dulgs more harm than the wagon was duly more than the wagon was the wa

this 1-ton wagon off my hands. On July 21st I asked for a reply to this letter.

AMUEL WALLACE, JR., MANAGER.

#### The Electric Wagon Company

Sole Agents for

LANGDEN WACONS. EDISON BATTERY EQUIPMENT.

The Lansden Company, of Newark, N. J.

35 Federal Street, Beston Room 521

¥2.

On August 3rd I asked again. Soon after, Mr. Doty ceme here, listened to my statements and agreed to have in my hands by the following Monday a proposition to take back the wagon.

Nothing happened.
On Aug. 25th I wrote to inquire.
On Aug. 21st I wrote again.

On Aug. sist I wrote ggaln. "we are making an effort to dispose of it is get. with kir. Dety wrote thout success," of the pose of it is get. The provided in the gradual seasons. On sept. 35th I wrote protesting against such evasion. On sept. 35th I wrote protesting against such evasion. On oct. 37d kr., Dety writes "suggest you sell the wagon at a price which will cover your investment in it." (Mr. Dety knows it cannot

be done.) Wy Landon experience has cost me about \$1300. spent for expenses plus \$1500, paid on account of the truck. Credit is due to me for commissions on sales to the Boston Rubber Shee Co., The Lowell Rheatric Light Co., and the Mass. Homeopathic Hoppital. No proper accounting has ever been rendered.

My means are limited and this is a serious matter with me. I entered into the arrangement in good faith, and I have been

abominably treated. I have every confidence that you will promptly see to it that

auxo

VARIOUS TYPES FOR COMMERCIAL AND PASSENGER SERVICE. THE EDISON STORAGE EATTERY EQUIPMENT.

# The Lansden Company Address all mail P. 0. Box 147,

FACTORY TELEPHONE: 840 BRANCH BROOK SALES OFFICE TELEPHONE: 1956-1957 BRANCH BROOK

54 6 - 56 Esckawanna Avenue Newark, N. J.

October 14, 1911.

Thomas A. Edison,

Orange, N.J.

Gentlemen:

We enclose you herewith invoice for cards ordered by Mr. Miller and Mr. Bachman, and delivered to them some time ago.

Yours very truly,

GSH Bald

Auditor.

WAI/MAE.

#### COPY

October 20th 1911.

Mr. W. R. Eldridge, c/e Electric Vagen Co., Federal Street, Boston, Mass.

Dear Sir:-

Replying te years of the 11th inst.

regarding the demenstrating wagen which you have on hand,

Mr. Edison directs me to write you that he is investigating
the matter, and will write you shortly.

Yours very truly,

H. F. Miller Secretary. ELECTRIC TRUCKS GASOLIHE TRUCKS DELIVERY WAGOHS REMI-TRAILERS W. E, ELDRIDGE
"GOUPLE-GEAR" MOTOR TRUCKS
178 DEVONSHIRE STREET
BOSTON
TELEPHONE FORT HILL 3366



October 24, 1911.

Hr. H. F. Miller, Secretary,

Laboratory of Thomas A. Edison,

Orange, H. J.

Dear Sir:-

I have your favor of the 20th inst. and feel much relieved to hear that Mr. Edison is investigating the matter about which I have been writing.

I note that you ask what I consider a fair settlement of the matter. I think that I should be permitted to roturn the wagen, receiving back the \$1500. which I paid upon it. I think that I should also receive the amounts of commissions due for sales made of Lansden wagens.

Very truly yo

17:00

WEE/GFB.

#### Mr. Edison:

had with the Electric Wagon To., represented by Mr. Elaridge of Boston, beg to say that this wagon was sold to Mr. Elaridge of Boston, beg to say that this wagon was sold to Mr. Elaridge with the understanding that it had been doing service, and for that reason offered them a special inducement on same.

Theliave, however, that Mr. Eldridge was not used properly in the matted fars much as he was told that the wagen had run but 500 miles sed probably had gone 25000 miles. The chains, sprockets and tiras were worm hadly and the body was poorly contratued, but I have been informed that Mr. Eldridge had seen the machine he was byling was apparently satisfied. This, however, is not rulable information.

Mr. Eldridge used this particular wagon to make a demonstration to Lowell Electric Light Co., on the strength of which ho made a sale; also a wagon practicelly in the same conditions at the one Mr. Eldridge had bought. This is the wagon we had to take back and were allowed \$8.00 per aday while being in use. We never had received newment on the machine, so this was the best arrangement I could make,

You will note from Mr. Eldridge's letter that he claims commission on this. I can only say that if Mr. Eldridge thought his deal an unfair proposition, why should he locker worr. recommend that you should have been allowed to the state of the state of

for his letters. The only ones we have not made replies to his letters. The only ones we ignored were when he asked for commission on the Lowell Richteria Light of the commission on the Lowell Richteria Light of the head to take back. I do not know whether this is the information you are looking for; other than this, I am maddide, of the you any, as these arrangoments were made between kr. Edited, well are and Morgan personally and there was no oversepondence relating to same.

Robert a Mademan

October 28th 11.

W. R. Rldridge, Eeq., 178 Devenahire Street, Beeten, Mass.

Dear Sir:-

Replying te yeur letter of the 24th instant Mr. Reisen has infermed the writer that if yeu will return the truck and give a full release of all claims he is willing that the Landen Campany should send yeu a check for Pifteen hundred (\$1500.00) Dellars, on receipt wagen at Newark, and will cancel yeur agency centract.

Yeurs very truly,

H. P. MILLER

Secretary.

electric trucks gasclihe trucks delivery wadons semi-trailers

# W. E. ELDRIDGE "COUPLE-GEAR" MOTOR TRUCKS 178 DEVONSHIRE STREET BOSTON TELEPHONE FORT HILL 3366

FRONT WHEEL DRIVE FOUR WHEEL DRIVE FOUR WHEEL STEER

October 30, 1911.

Mr. H. F. Miller,

Laboratory of Thomas A. Edison,

Orango, H. J.

Dear Sir:-

In replying to your letter of the 28th inst. I would say that I must decline to accept Mr. Edison's offer.

Fifteen hundred dollars is due me to refund the amount paid by me on account of the truck shipped to me.

There is also due to me, as per contract, commissions on the sale of Lansden trucks to the Boston Eubber Shoo Co., Massachmotts Homosopathic Hospital and the Lowell Electric Light Co. I shall be willing to return the truck, give a full release of all claims and concel the agoncy contract upon receipt of the statement from Mr. Edison that what is due to me, as above, will be paid immediately upon receipt of the wagon. I cannot understand shy he does not wish to have me paid the commissions which I have earned.

I onclose a clipping from Sunday's "New York Sun." I have the amount of capital referred to and you gontlemen over there know something about my qualifications. I would be glad to know what Er. Edison's wrongsition is.

ery)truly yours,

rept.	PROPERTY OF PROPERTY OF THE PARTY OF THE PAR
l'gas fixture	BOLLEGA
ricenth street	HAVE AN ARTICLE WITH
- hillting \$431.62	4 Fr. WILLIAM A LIMITED NUMBER OF THE
Gullek, vice	MIDDLE AGED MEN WITH SOME W.
and Archibal	OARTHAL OF \$1,000 to \$7,000 CAN
receivers unde	TAUT IN BUSINESS FOR THEM
o on receiver	
'175 employee	The second of th
\$5,000 and th	THOMAS A EDISON,
are unsequre	d PEDISON LABORATORI.
sok of finishe	diane. A.
alpment; \$122	CORPORATION maggingturing a patholist
ce : patent	CORPORATION for which there is a large mar-

Mobilison

"The ald Lanedon Co through John

Lausden hald a truck to the Wholt

Diepenson Co of Mumaphic which stated
to go to pieces in six runniho (see their letter
attached.) Doty & Bachman agreed to rebuild
it groung them a stock frame new type
Contiterahaft stee free on the muteraturing
that they would give as an order for three
or four new truck; The work cost \$1003.8°

and they have tricked one fine tone truck

Q\$ 5300.2° upon which the Sew Lanedon Ba
have allowed, a Commission of 10% or \$30.2°

leaving \$413.5° due which is charged to

you as few bill attached

H. J. M.

Gucumons are subject to relieve Change:





AND WAREHOUSES CHICAGO.

Minneapolis, Minn. Oct. 3, 1911.

The Laneden Company, 233 - High Street, Hewark, W. J.



Dear Sirs:

Referring to your letter of the Siet, we have eince had a call from Mr. R. L. Davisson of the Kdison Storage Battery Co., and of course he eave he is only able to give us the facts in the case from the battery eids of the question, and suggests that we equip this machine with twelve more cells. We would like your opinion on this. In event of not equippit with twelve more cells, would it be advisable to change the motor to operate under 60 cells? The batteries seem to be doing all right with the exception that we have had difficulty of seaming ground, which Mr. Davisson has agreed to replace with new style battery equipped with crating, which will eliminate this.

In regard to the third paragraph of our letter of September 16th, note you did not etate what you would recommend in regard to a steel frame on this truck. The truck is not satisfactory at present. We cannot keep the alignment and adjustment of motor and driving parts in line so that the batteries





MAIN OFFICES AND WAREHOUSES CHICAGO.

Minneapolis, Minn.

The Lansden Co. - 8.

and motor can give us the efficient service they are capable of. Further, having taken up the matter of wheeled base, in less than eix months have etarted to have tire trouble. This could have been eliminated had we used 32 x 4 or 5 base on the wheel instead of the 5 that the people recommend for a 3-ton truck a 36 x 4 wheel. Under the conditions of operation here, over about a half a mile of good country road, the balance on paresent, the larger wheel would have been more satisfactory.

In view of the fact that this truck is practically breaking down under six months service, would like to have your suggestion as to whether or not it had better be sent back to the factory to be rebuilt, and if so, what kind of a proposition you will make us to do so. We still have faith in the electric truck, but fear that this made was not built sufficiently heavy nor strong enough to do the work claimed for it. We wish if you have a representative in this section, that you would send him here to look over the cituation and have him decide whether or not it is a fair sample of your workmanship; whether you would care to have this truck pointed out to in

MEERT OF THE STATE OF THE STATE





CHICAGO.

The Lansden Co. - 3.

this section as being a sample of what to expect from all Lanaden trucks. We believe we have given it a thorough trial and used every effort to make it a success, and believe yet, that if the frame were strengthened and the braces for the motor and sprocket strengthened, so that the alignment and adjustment would be proper, the width of the wheels increased in front and in back, that the truck would give satisfactory service.

Awaiting your further reply,

Minneapolis,Minn,

Yours truly,

THE ALBERT, DICKINSON CO.

44-WCA







Minneapolis, Minn. Oct. 6, 1911

The Lansden Co.,

Box 147, Newark, N.J.

Dear Sire: .

Referring to your letter of Oct. 2nd. Oure of Oct. 3rd had already gone forward. Do not know what arrangemente you have made with Mr. Look, but the truck ie in operation at the Minneapolie office and trust that if further arrangement has been made with the Chicago office you will advice ue direct what it has been.

We hardly believe that in view of the condition of this truck that it would be advisable or profitable to repair it, unless it were thoroughly repaired. Have had the matter up with makers of truck bodies here in Minneapolis and they . advice that the job should be thoroughly done from the bottom up so that the upper alinement of all parts could be maintained and maximum efficiency of batteries obtained.

Aleo would be pleased to hear from you in regard to the matter of wheels and driving tires which we mentioned in our letter of the 3rd, which we believe covere the subject.

Youre truly,

WCA-41

THE ALBERT DIGKINSON COMPANY

v<sup>ys</sup>

Oct. 9, 1911.

The Albert Dickinson Co.,

Minneapolis, Minn.

Gontle men:

Your letters of October 3rd and October 6th duly received and noted. We have carefully considered all the circumstances connected with this truck, and have decided that it will be to your advantage as well as to curs to return the truck here and allow us to reconstruct it by putting in heavier frame. We are in a position to do this promptly and will make no charge for the work, provided you will agree to pay the shipping charged in both directions. When it is returned to you it will be practically a new wagon including new wheels and tires. We trust you will decide to let us do the work. If so, you may ship the wagon by freight without further notice. In the meantime we will hold up shipment of the truss fods which we had arranged with Mr. Lock to furnish.

Ymurs very truly.

THE LANSDEN TAOMPANY

Sales Dapartment.

AJD/SS

W. F. ELDRIDGE 178 DEVONSHIRE STREET

November 10, 1911.

Mr. H. F. Miller,

Laboratory of Thomas A. Edison,

Orange, H. J.

Dear Sir:-

Please favor me with a reply to my letter of October 30th. This concerns a matter which I think you will agree with me should be promptly cleaned up.

#### W. F. ELDRIDGE "COUPLE-GEAR" MOTOR TRUCKS 178 DEVONSHIRE STREET BOSTON TELEPHONE FORT HILL 3366

November 22, 1911.

Mr. H. F. Miller, Secretary,

Laboratory of Thomas A. Edison,

Orange, N. J.

Dear Sir:-

ment.

I have received no reply to my letters of Oct. 30 and Mov. 10.

I do not know how to take your attitude.

I have waited patiently since early last summer for a settle-

Everyone assured me that when Er. Edison returned from Europe I could get fair treatment.

Your policy of evasion is still working.

I cannot believe that the matter has been placed before Mr. Edison personally in the proper light.

I am not yet willing to believe that Mr. Edison desires to evade payment of a just claim. Therefore I now make one more appeal to him for a square deal.

If I am again ignored, what is left to me but to bring action?

Auto- LANSDEN

COPY.

JAMES A. HEARN & SON

Hew York Hovember 22, 1911

The Lansden Company, 233 High Street, Nowark, N. J.

Attention: Mr. A. J. Doty.

Gentlemen: -

mould say that the matters referred to in yesterday's conversation with Mr. Edison seem to constitute an offer to make some restriction for the enormous demages this firm sustained during that year's operation of the fifteen [15] high prison. The offer is not impross the writer as very liberal long to make that that it has been very tardily made), nevertheless, as one evidence of a desire to make amonds it seemed desireble to moot it half way.

. The sum that Jumes A. Hearn & Son lost directly and indirectly by the trunsaction is so far boyond the cost of the adjustments you proposed to make as to be beyond the possibility of compurison.

wero made by the writer immediately on resolting the station and his memory of it is very immediately on resolting the station and his memory of it is very control of the control of the of the control of the control of the control of the moment, vis.

Charging "other material and labor at cost plus 15%."

The agreements made were as follows:-

In re. rewire motor and make any other adjustments to truck 151 necessary truck 151 to make it as efficient as the other three ten truck without charge. Thile this was being done the Company was to loan to us one two wagons for use in its place.

2.- The Lansden Company will rebuild chasses on the fifteen (15) wagons (the ones rebuilt in 1910) using chrome mickeled pressed steel frames, present springs, axles and other material unless otherwise ordered, and will rewire the chasses (and the motors if necessary) on these vehicles without any charge whatever except \$24. each, the net cost of the press teel frames. While this work was going on on these wagons the Lansden Company was to lean us one, two or three wagons according to the number that they were working on.

15 cars

The Lansdon Company -2-

The only item of expense to be borne by James A. Hearn & Son was the \$24. each net cost of the pressed steel frames.

hardships of lest wintor were reported almost daily both to the Landson Company and to the Raison Buttory Community to conving the slightest substantial mapping on the slightest substantial mapping to the winton the winton the winter, out of consideration for those present, did not care to emphasize.

It is repeated that this offer constitutes the minimum, not the maximum that could be offered by the Landen Company if it is to retain its self-respect.

Yours vory truly,

(signed) H. Prescott Beach

for James A. Hearn & Son. THE WESTERN UNION TELEGRAPH COMPANY
25,000 OFFICES IN AMERICA
CABLE SERVICE FO ALL THE WORLD

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The Lansden Company

VARIOUS TYPES FOR COMMERCIAL AND PASSENGER SERVICE. THE EDISON STORAGE BATTERY EQUIPMENT. Electric Wagons

PACTORY TELEPHONE: 840 BEANCH BROOK SALES OFFICE TELEPHONE: 8966-1967 BRANCH BROOK

Newark, N. J. December 26, 191

Mr. H. F. Miller,

o/o Edison Laboratory,

Orange, N. .

Dear Sir:

Kindly return to us all the correspondence

which we sent to you with the Electric Wagon Co., Boston, Mass., and W. E. Eldridge, Boston, Mass.

If you have any other correspondence

in your possession belonging to the Lansden Company, we would appreciate your returning same.

Yours very truly,

THE LANSDEN COMPANY

General Manager.

SS/WLC



audo - Laus pen

The I

Dec. 27th, 1911.

Mr. Edison:-

Supplementary to the list sent you 12/11/11, beg

to hand you herewith a list of additional work done and in progress for the Lansden Co.

our						
11		2737-54 2766-	1	"11	13851-	- for 36 Safety Switches " four 3-ton upper stsering
"		2700-			200	head bracksts
17	11.			17	13852	" 4 Caps on stesring head brackets
"	17	2767-		11	13899	# 4 %-ton lower " " "
	"	2780	11	**	13947	" 4 " Long countershafts
11	"	2781	, ,	11	13951	" 4 " Short "
11		2782		11	13973	" 6 of each 5 ton long and short
17	11	2786			10310	countershafts
				**	13990	" 5 " " 3 ton left brake rod
**	**	2790			19990	brackets and caps
			11	**	13992	" 5 of each 3 ton right rod
11	11	2792			10990	bracket and caps
				11	13991	" 18 5-ton counter housing caps
"	11	2792	"		13994	" 18 " " housings
**	. 11	2794	"	"	13994	" 4 3-ton Brake Drums
11	11	2793		,		" 4 2-ton " "
11	11	2804			14230	" 4 5-ton Brake Laver Brackets
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11	11	28'06	1111	"	14232	" 8 3-ton " Shoes
11	17	2807	"	11	14233	" 8 3-ton " " Brackets
11	11	2808	**	17	14234	" 4 3-ton Rear Spring Blooks
	1 11	2809	11	11	14235	# 8 2-ton Brake shoe brackets
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17	11 :	2811	11	11	14237	# 4 2-ton Rear Spring Blocks
11	17	2812	"	11	14238	
11	- 11	2813	**	**	14239	" 10 5-ton Motor Suspension brackets
11		2814	"	n	14240	" 10 5-ton Caps for "
11	11	2815	· , n	11	14241	" 8 3-ton " " " "
**		2816	`"	**	14242	" 8 3-ton Motor "

Nicolai.

auti

Address all mail P. O. Box 147.

## The Lansden Company

Electric Wagons

+ & 56 Lackawanna Avenue 19 253-235 High Shoot Newark, N. J. December 29, 1911.

PACTORY TELEPHONE: 240 DRANCH DEDOK SALES OFFICE TELEPHONE: 1956-1957 DEANCH DROOK

.

Mr. H. F. Miller,

o/o Edison Laboratory,

Orange, New Jersey.

Dear Sir:

VARIOUS TYPES FOR COMMERCIAL AND

PASSENGER SERVICE. THE EDISON STORAGE DATTERY EQUIPMENT.

In compliance with your request over the telephone, we are sending you The Lansden Company's sorap-book, with olippings to June 1910.

Yours very truly,

THE LANSDEN COMPANY

ales pepartment.

SS/AJD



Regarding Eldridge letter sell him a second hand Wagon in Counteration of getting an exclusive agency for Boston all of Marshautt east of Workish County ethe State of Rhode Island, and he agreed to take it as you will see from his letter attached I live also offices to give him a new body He sent per \$ 150000 on account The wagon was billed to him at \$2475" and we have applies all Communion due him against the balance due us. His commissions on sales are \$720. I understand he is friendly to Laurden Mo Doty never made a proposition to take buck the wagon as he

lany & Bachman pay to Elder egettal Mes & says of he welreturn Und Cruck a close the transaction that. he is willing Lowedon Co should send him Chicker \$ 1500 -

aute Lumden

Clertric Magaus

S. R. BAILEY & CO.

NEWARK, N. J.

1634 WALNUT AVENUE CLEVELAND, OHIO

Part 2

TELEPHONE NORTH 300

Call it the Edison and then centralize in and around this building Electrical Manufacturing concerns and thus not necessarily create an expensive interior to the building. We can get the Halle & Higbes cars to join us and we should find plenty of others in due time by including pleasure Electric for day storing and charging while business wagons are out on duty.

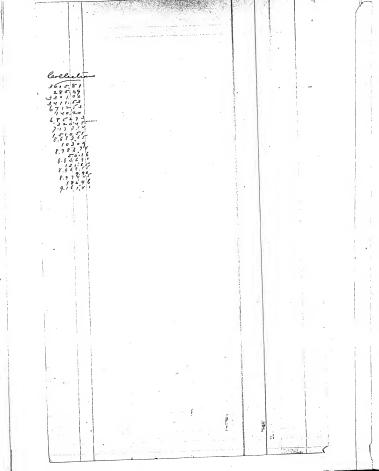
At your earliest convenience we would be glad to hear from you on this subject and oblidge.

Yours Very fordially

P.S. If this is successful in Cleveland we could repeat it in other towns.

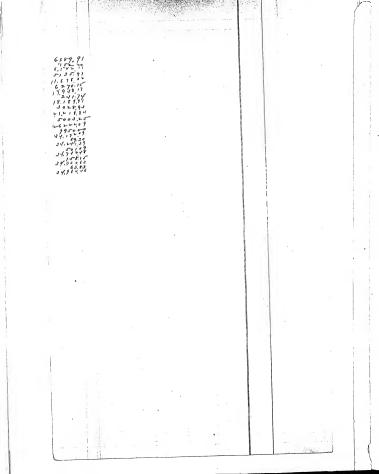
Mr Edin The attaches list of also should be written of to Lough Will you please on. # 7 Miller Cohange Profit and Less Bredit the following - viz 480501 Dilver Lake Insurance 7472 53/ Florida Labily Expense 109432 / Laby Insurance 15 20,092,001 Gift of 187500/ new york clases, Interest, Insura 777,501 Life Insurance 1638,401 Silver Lake Jases 92301 mento Park Insurance, Jases Ele 27.93 Burlington Township Jases Jases 1,3505 Lali 25.87 milan ohio , Jases 58310 Legal Expense 35294,50 Individual 3 and Companies Thomas a Edison Ir wm L. Edison J. M. Landen Ir 4492.75 3561.08 8.37892

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#### Edison General File Series 1911. Battery, Storage - Edison Storage Battery Company (E-11-15)

This folder contains correspondence and other documents relating to the commercial and technical development of Edison's alkaline storage battery. Included are estimated advertising budgets and printed advertising proofs, several of which contain corrections or other remarks written by Edison in the form of marginalla. Among the correspondents are the advertising firm of Calkins & Holden and longtime Edison associate T. Commerford Martin, who was collecting figures about the Edison Storage Battery Co. on behalf of the U.S. Census office. One letter by Henry Lanahan and Clarence Churchill, written on behalf of the company, concerns urban and Clarence Churchill, written on behalf of the company, concerns with agencies involved in the sale of "pleasure electrics" and their attitude toward the Edison battery. Also included are two expense statements pertaining to the assembly of battery cells and a letter from investor James Gaunt.

Approximately 30 percent of the documents have been selected. The documents not selected include invoices, purchase orders, and additional advertising profs, along with a draft booklet entitled "The Margin of Certainty." Also not selected are site reports made by Lanahan and Churchill while visiting individual agencies and an equipment proposal, submitted by the machine tool manufacturer Niles-Bernent-Pond Co., concerning plain milling machines. Both bear perfunctory marginal markings, probably by Edison.

Related material can be found in E-11-18 (Battery Storage - Electric Vehicles - Promotional).

#### CALKINS & HOLDEN · 250 FIFTH AVENUE NEW YORK · ADVERTISING

February the fourth,

Mr. L. C. McChesney, Manager Advertising Department

Edison Storage Battery Company

Subject - Newspaper and Magazino advertising

As requosted by you yesterday, we are enclosing two estimates for the Edison Storage Enttery advertising -- one covering a list of newspapere, and the other a list of magazines.

We are also enclosing proofs of Hr. Edison's advertisement set in two ways for the magazines one the square quarter page; the other the horizontal quarter page. If we can get top of column position on this horizontal quarter, we think it will be better than the other. If not, we would recommend the equare space.

We have also set this advertisement in five inches, eingle column, for use in the newspapers.

In addition to this advertisement we have prepared one which we have put in type, which we think is a better presentation of the subject, and also enclose typewritten copy for two more.

We think Hr. Edison should be advised against running a standing ad. We do not believe anything is sale to write an advertisement that is

Edison Storage Battery Co.....2/4/11.....2

insertions over one. The Edison Storage Battery is such a big subject, and has so many arguments in its favor, that we certainly should use our space presenting these arguments.

We are also doubtful about the catalogue. While this is an excellent piece of printed matter, we do not think it is sufficiently clear to give the average slectric vehicle purchaser a complete understanding of the superiority of the Edison Battery. While it would be a good idea to offer to send this catalog to inquirere, we think we should send in addition a folder along the lines of the enclosed, which presents in a very interesting way the results of the tours which Mr. Edison conducted last fall. While the dummy we send is very rough, it could be made into a very attractive thing, and we believe it ought to have consideration in connection with this campaign.

The whole subject of entering the suggaines with this Battery is very interesting to us, and we with this Battery is very interesting to us, and we was no doubt, if a little more time was afforded, that we could work out a much more affective campaign than Mr. Edison has in mind. We hope, therefore, that we may be permitted to prepare other advertizing for the spaces suggested, and include in our offer the distribution of the folder referred to above.

70g/

Calkin aux Foeden

### CALKINS & HOLDEN · 250 FIFTH AVENUE NEW YORK · ADVERTISING

2/4/11

The Edison Storage Battery Company Orange N.J.

Estimate for Newspaper Advertising - 1911

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The Edison Storage Battery Co., Est. for Newspaper Adv.-1911,..2/4/11,..#2.

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<sup>\*</sup> Bouble price for cuts. \* \* 1000 line rate.

### CALKINS & HOLDEN · 250 FIFTH AVENUE NEW YORK · ADVERTISING

2/4/11

The Edison Storage Battery Company Orange N.J.

Estimate for Magazine Advertising - 1911

N or T: Publication:	Space:	?ines:	Cost per insn. Net: Gross:	Cost all in sas. Gross:
M: Vorld's Work	1/4 page	8	\$50.00	\$150.00
M: Review of Reviews	1/4 "	3	62.50	187,50
M: Sorioner's	1/4 "	8	75.00	225.00
M: Century	1/4 "	3	62,50	187.50
W: Outlook	1/4 "	8	\$45.00	148.50
M: McClure's	1/4 "	3	115.00	445,00
M: American	1/4 "	3	78.00	284.00
W: Literary Digost	56 lines	3 3	63.00	207.90
W: Saturday Eve. Post	56 "	3	302.40	997.92
Ly.	57 "	3	56.00	\$2,783.32 16°.00

2/4/11 - 5 -Edison Storage Battery Co. 1/4 Page Maga. ad.

Nine Tenths of what to know about electric vehicles, is battery.

Formerly 50 miles on a charge was considered a good mileage average for electrics.

Today you can be sure of over a hundred with the

Edison Storage Battery

Send today for our new book, which covers all you ought to know about batteries - and that's most of all you need to know about electric vehicles.

Edison Storage Battery Company,

....Lakeside Avenue, Orange, N. J.

2/4/11. - 5 Edison Storage Battery Co.
1/4 Page Magazine ad.

When you investigate electric

vehicles ask the man

how far it will average on a single charge of the battery.if he snawers "a hundred milesy or better" and you know he's telling the truth, the vehicle is equipped with

The Edison Storage Battery.

But it. But first know all about batteries for the battery is "nine tenths of what to knew about electrics."

Send for our new book about the Edison - and the others.

Edicon Storage Battery Company, ...Lakeside Avenue, Orange, N. J.

9K

# Electric Vehicles Edison Storage Battery

If you contemplate purchasing an Ricctric Vchicle, investigate the Eddson Stompe Battery for driving. It. The first cost of this lettery is considerably, greater than the ordinary lead noid combination. more rollable. It gives twice the mileage and it has made the Kiectrie within the sast two years the most desirable, the most reliable and cheapast vehicle to maintain both for family use and for truckring. For catalogues and other information, address

## The Electric

has become the most desirable, most reliable and cheapest to maintain of all power-driven vehicles. The

# Edison Storage

has made it so. Though costing more than the lead acid battery, it has twice the mileage, half the weight and many times the life of any other battery.

The Catalogue is free

Send for it and read it before you buy, or of your and the have a vihido with a

Vehicle

C+H.





OK

## Electric Vehicles Edison Storage Battery

If you contemplate purchasing an Electric Vehicle, investigate the Editon Storage Battery for driving it. The first cost of this battery is considerably greater than the ordinary lead acid combination, but its life is several times greater, and it is far more reliable. It gives twice the nileage and it has made the Electric within the last two years the most desirable, the most reliable and cheapest vehicle to maintain both for family use and for trucking:

Edison Storage Battery Company 121 Lakeside Ave., Orange, N. J.

PROOF FROM SALKING & HOLDEN, NEW YORK

EDVERTICEMENT TO OCCUPY If page IN Magazines

#### Our Booklet explains.

If you expect to buy in or if you now own an Electric with lead battery and want to double your mileage, send for our backlet

# The New Edison Storage Battery

Tests of the "family electric" vehicle "Day Outing" Trip No. 1

Results of "Day Outing" Trip No. 1 with Detroit Electric

Carrying two persons; total weight 2,460 pounds.

Start 40th Street and Lexington Avenue, New York, 7:28 A.M. Returned to starting point 5:02 P.M.

Actual running time, 6 hours 58 ntinutes. Distance traveled in covering this route,

84 miles. Car, run to a standstill after completion of trip, showed 18 miles surplus.

Total mileage for the day, 102 miles on a single charge of the battery. Roads generally good-many heavy



#### Results of Edison "Day Outing" Trip No. 2 with Bailey Electric

Total weight of car, carrying two per-Total weight of car, carrying two persons, 2,346 pounds.
Start 40th Street and Lexington Avenue, New York, 7:40-A.M.
Returned to starting points:46 P.M.
Actual running time, 5 hours 6

minutes. Distance traveled in covering this rout

76 miles. Car, run to a standstill after completion of trip to show margin of excess mileage still in the battery, gave 40 miles surplus.

Total mileage for the day, on a single charge of the battery, 116 miles. Country mountainous and beautiful. many heavy grades, some 10%, but roads average good



#### Tests of the "family electric" vehicle equipped with

## The New Edison Storage Battery

"Day Outing" Trip No. 2

## Edison "Day Outing" No. 3



Thill's teries of "day outlag" test trips which the Editors is conficient, the office of electric which with proper lattery equipment it is practical, dependable and economic at which of the practical, dependable and economic at which of the present and the fature. Mr. dating the cars used alternately on these trips—the Detroit and the Balley—other than to prove this fact. The Derivst and the Balley—other than the same of the present the property of the prop

will be made with their cars.

In these "day outing" tests the route, as shown in the man accommanying each of these

Results accomplished on Edison "Day Outing" Trip No. 3

#### with Detroit Electric Total weight of car with two persons, 2,448

- pounds. Start, 40th St. and Lexington Avc., New York, 7.23 A. M. Returned to starting point, 4.56 P. M.
- Returned to starting point, 4.56 P. M. Actual running time, minus time consumed waiting for ferries and stop for dinner, 6 hours 31 minutes. Distance covered in accomplishing this
- route, 834 miles.
  Car, run to a complete discharge of battery after finish of route, gave a mar-
- gin of 39 miles excess.

  Total milesge for the day on a single charge of the battery, 1224 miles.

  Fine landscape, good reads generally, but a number of stiff 9% grades.

announcements, is laid out beforehand. The battery is given a maximum charge and the full route traveled. After returning to starting point the ear is run to completely exhaust the battery, to show exactly how much sore mileage the battery contained than was necessary to bring the ear back to the starting point—the margin of certisity.

The high average of mileage which these tests are showing and the wide margin of excess mileage in each instance are clearly proving Mr. Edison's contention that the electric is the family car—the car anyone can operate and that almost everyone can afford to one and maintains. These tests are only made possible by the use of

## The New Edison Storage Battery

#### A Bailey Electric equipped with the Edison Storage Battery goes 139 1-2 miles on a single charge

Results accomplished on Edison "Day Outing" Trip No. 4, with Balley Electric

Total weight of our with two persons, 2,357 pounds. Start 40th Street and Lazington Avenue, New York, 7:16 A. M. Returned to storting point 12:34 A. M. Actual ranning time, nileus time consumed waiting for ferries and stop for dinner, 6 hours 39 minutes.

Distance covered in ecompaning that route, over more.

Car, run to o complete discharge of battery after fluish of route, gave a margin of \$1\frac{1}{2}\$ miles excess.

Texts mileage for the day on a single charge of the battery, 130\frac{1}{2}\$ miles.

Community country: rands on the average good.



THIS is the best record yet in the series of "day outing" test trips conducted by Mr. Edison. On trip No. 1 the car ran 102 miles on a single clustee of the buttery; on trip No. 2 it was 114 in Nu. 3.

On trip No. 1 the car ran 10<sup>8</sup> miles on a single charge of the battery; on trip No. 3 it ran 11<sup>6</sup> miles, on trip No. 3; 12<sup>3</sup> miles, and now on trip No. 4. 13<sup>3</sup> miles—giving a margin of 51<sup>5</sup> miles excess over the ST4 miles trip which was planned for the "day"s outing, a margin and the state of the "day"s outing, a margin of the "day"s outing, a margin of the "day so outing, a margin of the "day so outing, a margin out the state of the "day so outing, a margin out the state of the "day so outing," a margin out the state of the "day so outing, a margin out the state of the state of

as above in the map accompanying each of these announcements, is idd out beforehand. The battery is given a maximum of the companying the companying the companying the companying the companying to starting point the oar is run to completely exhaust the battery contained the companying the battery contained the companying the companyin

# The New Edison Storage Battery

## Edison "day outing" trip No.5

brings out another interesting record—Detroit Electric, on a single charge of the battery, goes 113 miles over a route with many heavy grades up to 8; per cent, running against a head wind equivalent to 2; per cent grade. The high average mileage that these "day outling" trips are showing would never have been possible to electric vehicles with equipment other than

## The New Edison Storage Battery

The present Edison Storage Battery is a perfect product, resulting from experiences covering a period of six years, during which time more than 30,000 Edison Batterles of the lirst or experimental type have been in successful use on over 400 trucks and other vehicles.



#### Results accomplished on Edison "Day Outing" Trip No. 5

with Detroit Electric

Total weight of on with the particular, 448 pounds, Start 40th Street and Lexington Avenue, New York, 7,39 A. M. Returned to starting point, 6,05 P. M. Actual reasoing times, points time consumed willing for ferries and slop fee dinner, 7 hours 52 minutes.

Distance traveled in covering this roate, 98 miles. Car, run to complete discharge of battery

after finish of route, showed 15 miles surplus. Total mileage, for the day, on a single charge of the battery, 113 miles. Roads generally good—many heavy

The cars used alternately on these trips are the Detroit Sectric and the Belloy Electric-become they ere the Sectric sheety equipped with the Elison Storage Batrey. Notiter Mr. Ednon nor the Elison Storage Bettery are. Notited for the Section of the Elison Storage Bettery thring those start, or thinks, properly equipped, gasoline car and over the electric vehicle other son Storage Battery equipped.



On Edison "Day Outing" Trip No.6 the Bailey Electric goes 108 miles on poor roads, through hilly country, encountering many grades up to 15%, running against a constant head wind equal to 2% grade—another triumph for

## Results of Edison "Day Outing" Trip No. 6

Trip No. 6 with Bailey Electric Total weight of car, carrying

Total weight of car, carrying two persons, 2,345 pounds. Start, 40th Street and Lexington Avenue, New York, 7:21 A. M. Return to starting point, 5:56 P. M.

Actual running time, minus time consumed in waiting for ferries, dinner, etc., 7 hours to minutes.

Distance traveled in covering this rente, 98‡ miles.
Car, run to a stansistill after completion of trip tushes murgis of excess unlesge still in the battery, pave 9‡ miles surplus.

Tetal mileage for the day, on a single charge of the battery, 108 miles. Country mountainens and

country mountainous and beautiful, heavy grades, many 15%. Head wind equal to 2% grade. Roads

# The New Edison Storage Battery

THE New Editon Storage Battery should more properly be collect the improved Edition more properly be collect the improved Edition. Better, for it is a perfect development of the contract of

and the Detroit Electric. Neither Mr. Edition nor the Edition Storage Battery Company has any Interest in either of these vehibles, further than the firm establishment of Mr. Edition's contention that the family type of electric vehibler Edition Storage Battery equipped—is the car of the present and the fotore—the car that is those lotely safe, the simpliest to handle and by all odds the most economical to operate.

## **Hill Climbing Test**

otth Ratley Electric

## 21 times up Fort George Hill

Fort George Hill is 2138 feet in length and 11% grade. This means the New Edison Battery lifted 2387 pounds of car and load, almost one mile vertically in 8 miles

on one charge

# The New Edison Storage Battery

## City Test

on one 7½ hour charge

Ran 1½ to 2 hours every day for seven days. Cost of charge \$1.42, or 21 cents per day. Average speed 12.32 miles per hour—120 miles total. Total weight of car and the two passengers 2470 pounds.

#### A Detroit Electric equipped with the Edison Storage Battery goes 121 miles on a single charge

Results accomplished on Edison "Day Outing" Trip No. 8, with Detroit Electric

Total weight of car with two persons, \$4.48 pounds.
Sinct 40th St. and Leadington Now. New York, 7.53 A. M.
Sinct 40th St. and Leadington Now. New York, 7.53 A. M.
Actual running time, min us time consumed in atop for
dinner, \$6 hours, \$4 minutes.

Dinner, \$6 hours, \$4 minutes.

Car, run to a complete and it actually after finish of
Total mileogree God you as Lagle delargo of finitery, \$19 miles.





# The New Edison Storage Battery

Edison Test No. 9

## Six-day Tour

with Detroit Electric equipped with

# The New Edison Storage Battery

478 miles—average 68 miles per day

This run, from New York via Asbury Park and Atlantic City to Philadelphia, and return via Bethilehem, Port Jervis and Newburgh, shows the consistent dependability of the electric pleasure vehicle with the proper battery equipment over a period of continuous hard road service.

On this trip, through hilly and even mountainous country, some of the best and worst roads in Pennsylvania and lower New York State were covered. Yet in many instances, an average speed of 15 miles an hour was maintained, and the run from Atlantic City to Philadelphia, 62.62 miles, was accomplished at the rate of 19; miles an hour. This average speed for the distance is unprecedented for electric vehicles, even on city pavements, and would not have been possible with equipment other than the new Edison Storage Battery.



Edison "Day Outing"-Test Trip No. 10

Bailey Electric covers 85-mile route, then gives 41% miles excess—the margin of certainty-before complete discharge of battery; 126½ miles on a single charge of

# The New Edison Storage Battery Average speed 14 miles per hour



The milenge made on this last Edison test trip 126; miles, brings up the average milings for tests already completed from 117; to 1184; miles on a single charge. In no instance has the milenge ess then 102 miles and this minimum was d vy grades oucoinstered. Formerly, 50 miles mildered a good day's work for an electric was commond a good of the Elison is conducting nee proving that the electric vehicle has arrived—and that the new Editon Storage Battery is its

# The New Edison Storage Battery



made possible this 1000-mile "ldeal Tour" and 7 miles of the 8-mile climb up Mt. Washington accomplished by "Detroit" and "Bailey" Electrics, proving by this remarkable performance that the electric vehicle with Edison Battery equipment will cover any route that a gasoline car can cover.

Of the prominent makes of electric vehicles now regularly equipped with the Edison Slorage Hattery—"Detroit," "Balley," linker and "Waverley"—"tou vehicles, n. Detroit and a lindiey, started from New York of Sept. 17th and successfully completed what is known as the "Ideal Tour." The arm started in opposition of the control of the complete of the control of the co

to attempt the climb of Mt. Washington—6,220 feet high, with grades varying from 145 to 275. That an electric vehicle, equipped with a 2½ H. P. motor and its storage battery, should even attempt a climb that taxes high-powered gasaline cars to the limit, is unheard of. Yel 7 miles of the 8-mile climb were accomplished, the last mile being made impossible by blinding.

This remarkable performance proves that the electric vehicle is no longer a laxurious toy for eity use, hat, equipped with the l'Alison Storage Battery, is the practiculeur of the present and the future—the car that any one can opernte and that almost everyone can afford to own and maintain.

5B- advartising.

## **ELECTRICAL RECORD**

THE GAGE PUBLISHING CO., Inc.

Beautiful and the Color of the States of the Color o

If you have any way of tracing results from your advertising, will you please see how the actual sales made through the ELECTRICAL REGORD compare with the actual sales made at the same expense through other papers.

Are you aware of the fact that the ELECTRICAL RECORD has a larger number of advertisers of electrical apparatus than any other publication in America - by more than 30% ?

Are you also aware of the fact that your Sales Department uses our Mailing Lists, which are loaned only to advertisers? Our Monthly Bulletins of additions, changes and corrections enable that Department to keep their card

Ours, you see, is a double service - advertising and mailing list. Your Sales Department needs this sorrice, and we respectfully request you to restore the ELECTRICAL RECORD to favor.

We ask this on the points of service, cost and efficiency.

Very truly yours,
THE GAGE PUBLISHING CO.

WTC/HS

22 T. Call, Socy & Treas

be got. This for your information. Jus 7/25/11 I could not get a becch sed I hid for for the bound a Church We to the ceffer is falled carrying 5 theres of Hock . J. Junear get better bel for hum please do so. for extentand Jank fully they I ask about the 1 James bond, carrying of theres of Hock Elisin Bettery & A mucht price must be at for the purpose of settling James estate. I am ready to late the boud at the price he paid but must the Espett to get more if it can

MANUFACTURES

#### Department of Commerce and Enter BUREAU OF THE CENSUS Washington

T. C. MARTIN EXPERT SPECIAL AGENT 239 W. 557H STREET NEW YORK, N. Y.

NEW YORK, N.Y. March 7, 1911.

W. H. Meadoworoft, Esq., Edison Laboratory Orange, N. J.

Dear Mr. Meadoworoft:-

Please note the enclosed which I shall be glad to have you return to me. I cannot very well answer the question off hand but shall be glad to know if the figures quoted represent cells of batteries or mumbers of plates or weight of plates. On the face, it is hard to tell just what the figure means. I might say that these figures are merged in other figures so that their identity is lost and the details of the business are not given away.

Yours truly,

LEXPORT Special Agent.

2310

MANUFACTURES

Department of Commerce and Enture Bureau of the Census

Bushington

T. C. MARTIN
EXPERT SPECIAL AGENT
239 W. 93TH STREET
NEW YORK, N. Y.

NEW YORK, March 10, 1911.

W. H. Meadoworoft, Esq., Legal Department Edison Laboratory Orange, N. J.

Dear Mr. Meadoworoft:-

I have yours of March 9th and an much obliged to you for giving me figures with regard to the Edison Storage Battery Company, which seems to be exactly what is needed at the Geneus Office.

Vouratury.

Balley-Stor.

# EDISON STORAGE BATTERY COMPANY COST AND EXPENSES PER OELL ASSEMBLED . (OH A-4 CAPACITY BASIS) MOETH OF MARCH 1911

# MANUFACTURING COST OF CELLS:

	. (Including Miscoldians)		
	Bouivalent in A-4 Cells:-	سب مامینسید میسیساد	1 1
	\$7.73 14 10.91 2 14.29 2 2.59 4 2.59 4 20 5 0011s \$50.72		•
	Average Cost per Cell A-4 Basis:-		
	\$39.72 * 57 =	\$7.56	
	BATTERY EQUIPMENT:	.26	
	Trays, jumpers etc., and labor in assembling Selling Expenses per cell (A-4 Basis)		
	9213 cells		
	Advertising	2.045	
9	Rent		
	Interest on Funded Dest		
	Total Cost and Expenses	\$10.404	
		911 151	

	March	Aprile	may	June
A 4, assembled	3336	2586		
A_6	2668	3186		
4_8	562	570		
B 2	502	481		<u> </u>
B.4	1251_	_11.9.6_		
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Equivalent in A 4		9373		
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All expenses, not (except roturns) Grand Total	1 .	25818.19		-
Grand Total	96047.39	-99.094.81		
mifg Cost por cele - A	7.54	7.82		
Expenses	2.89	2.75		
Total Cost " "	10.43	10.57		T
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Report of Mero, Churchill & Lanahan

Edison Storage Battery Co.

Thomas a Edison

Orange, N.J., U.S.A. November 14, 147

Mr. Frank L. Dyer, o/o The Homestead, Hot Springe, Va.

Dear Mr. Dyer:-

The impression which we bring back from our trip is that for the most part the various agencies for the anle of ploasure clootrice are either indifferent to runware of the fact that they are no longer in a position to furnish the Edison battery. In general, we find they have the usual attitude of calesmen, making them antagonistic to anything which increases the ceiling price of their product, and in referring to the Edison battery if they admit it has a greater muleage than the lead batteries they point out the fact that they cost \$600. more and that the lead batteries had all the muleage which is required in a pleasure vehicle.

They state that as yet there are no charging facilities outside of the cities and that the electric cannot, therefore; be used in any way as a touring car and that the lead battery will give from 50 to 80 miles, which is far more than could be used in city work in any one day.

Almost universally the electrics are kept in public garages and at the call of the owner at any time fully charged.

Usually, the first remark after the subject of the Edison battery is brought up in its added cost to the owner without giving the owner greater service than he could secure with the lead battaries. The long life of the Edison battery is offset by the guarantee of the lead battery people for 20,000 miles.

The adveree comments which we hear most frequently are that the Edison battery is very alow on hill work and sluggish in cold weather, that it is complicated, and the garagee not being familiar with it have much difficulty in caring for it.

Of the forty agencies we visited, sight of them spoke in condomnation to the effect that in extremely cold wanther they practically went out of bombiesion, could hardly climb hills, and take far more current to charge than lead batteries. Two agents mantioned firms which having used the Edison batteries found them entirely worthless and are now using the lead batteries. One agent criticised the Edison guarantee as being so worded as to be practically worthless.

As the agents in the different cities of the same make of vehicle differ so widely in their opinions and comments of the Edison battery, it is swident that their remarks were not inspired from their home offices.

F. L. Dyer - 2.

The attached reports give you the results of our visits in detail, from which you will probably get the idea as we have, that for the most part the various agents apeak more in ignorance than in malice towards the Rdison Storage Battery.

Very truly yours,

LH/ARK.

Henry Landan

## ELECTRIC VEHICLES

### IMPORTANT TO INTENDING PURCHASERS.

or truck with an ordinary storage battery, inniet that your contract shall provide a test but your contract shall provide that your contract shall provide that on he patients of the contract that on he patients of the contract that he wildle that you was the contract that he wildle to make without satisfact on the truck with a well of the contract that he benefit had the wildle to the ordinary or with the same weight given who will be there, or with the same weight given who che mileage. Besides, it is perfectly reliable over a period of several years.

The output of the Edison factory for of the last year, it was contracted to 1912, but and affect year, it was contracted to 1912, but and another than the contracted to 1912, but another than the contract of 1912, but and 1912, but another than the contract of 1912, but another than the contract of 1912, but and 1912, but another than the contract of 1912, but and 1912, but another than the contract of 19

We shall be glad to supply information about electric vehicles.

EDISON STORAGE BATTERY CO.

ORANGE, N. J.

any bromble



# 1.776.000 "jolts" of ½ inch each

Here is the apparatus used by Mr. Edison in testing the mechanical strength of the Edison Storage Battery. Like all his tests, the strain imposed was many times greater than will ever be met with in practice.

The cell was raised and dropped one-half an inch 1,776,000 times—a million and three quarter half-inch jolts aggregating 74,000 feet.

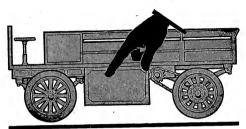
The Edison method combining light weight and rugged strength enabled the cell to go through the test uninjured.

Neither its electrical capacity nor mechanical construction were impaired in any way, because steel, iron and nickel will endure shocks that heavy lead plates cannot possibly undergo.

Not to mention the disintegration of active material found in the old style lead batteries.

The Edison Storage Battery Perfects the One Weak Link in the Electric Vehicle Chain

Edison Storage Battery Company, - Lakeside



# The One Weak Spot

Everybody in the business knows what has retarded the advance to which Electric Vehicles have been rightfully entitled, -(1) heavy lead batteries that required constant supervision at the hands of an expert, and (2) even then a short life in heavy work of from 8 to 15 months at best-

Lead batteries could not be depended upon, not for any lack of skill on the part of the manufacturer, but because of the inherent defects in the principle involved. They were heavy in weight and rapidly decreased in capacity even under the expert supervision of skilled battery

The weak spot that so checked Electric Vehicle progress ceased to exist with the advent of the Edison Storage Battery, because this battery overcomes all the objections to the lead-acid combination. It has no lead to crumble; no acids to destroy. Therefrore there is no corresion, no dropping out of acitve material. The weight is one-ball for the surface output. The capacity, instead of falling off, increases with use due to the better contact of the control of the co of the active materials and the conductors.

The light, rugged strength of the Edison Storage Battery is obtained by using steel, iron and nickel, constructed lightly but strongly, with due consideration to mechanical strength and electrical reliability.

EDISON BATTERY POINTS

Now. Electric Vchicles can run farther, faster and better, with absolute dependence upon the Bat-tery, which can be discharged down to zero, overcharged, left standing without charging-in fact given the mistreatment which batteries are sure to get in practice, but which they could never withstand before.

Edison Storage Battery Company, 104 Lakeside Ave., Orange, N. J.



The value of all the horses in the United States is \$3,400,000,000-over 3% billions of dollars!

The value of the hay and oat crops in 1909 was \$1,097,519,000-more than twice the value of the wheat crop!

These vast sums give an idea of the size of the trucking business, which is being constantly deflected from the Central Stations and Vehicle Makers, because in the past the only storage battery available was the lead-acid combination with its great weight, short life and multiplied troubles.

The electric wagon was all right—the electric motor perfect—but the

battery was the weak link in the chain.

The Edison Storage Battery puts the electric wagon and truck business largely in the hands of the Central Stations for the future, because of its Light Weight, Rugged Strength and Reliability, without the trouble man as a constant factor and the repairs, washings, etc., heretofore linked in as an integral part of the storage battery business.

#### EDISON BATTERY POINTS

One Edison Battery will outlast 6 to 8 lead batteries in the hands of the layman, not to mention the tremendous item of repairs and maintenance required by even the best of the lead batteries

EDISON STORAGE BATTERY, Lakeside Avenue, Orange, N. J.

# One of Two Things

The Edison Storage Battery increases the effective mileage of Electric Vehicles—or reduces the weight of the vehicle.

This is because, for each pound of weight, it gives an active service which is twice the watt output that a lead battery is capable of giving in active service over a period of only one year. The Edison Battery is legally guaranteed for heavy-duty truck service for 3 years.

Such a tremendous advantage can be seized upon to reduce the total weight of the vehicle as well as that of the battery itself. Or to secure an increased mileace—either or both—within motor-voltage limitations.

The one weak epot that has held back all the advances to which Electric Vehicles have been rightfully entitled, has been the lead battery with its great weight, troubles and short life.

With a lighter and more rugged battery Electric Vehicles would, years ago, have come into their own. The electric motor would have done for them what it has done for street cars.

The Edison Storage Battery with its light, rugged construction combines minimum weight with long life and reliability.

The legal guarantee given for the Edison Storage Battery in truck service is 3 years, but the actual, practical life is, of course, much longer. If this were not so, the Edison Company could not afford a 3-year guarantee. The extra life of the Edison Storage Battery is as much an advantage to the customer

as it is the company making the guarantee.

The maintenance of storage batteries in heavy-duty trucks has been estimated by truck manufacturers at 109 per cent. per anaum. This prohibitive and destructive depreciation has been eliminated by Mr. Edison's eight years of unremitting work on the storage-battery question.

To-day the pleasure vehicle or truck manufacturer, as well as his customer, can count upon his battery as being an investment and not a running expense.

#### EDISON BATTERY POINTS:

one-half the weight or double the power for the same weight.
A doud snort circuit of a cell will not \_ujuro it.
Three-year guoruntee for truck and wegon batteria.
Notes, no acts—consequenty—no acid forest

worce batteries.
Nothing but atest, from and nicked is a potage modulion.
No hydromourn to botter with an t

n actual increase of capacity in daily use, dan to gradual improvement in the active material.

capacity after 75,000 miles equival than when now. No loss of active material due to integration. No cutting uport of cells for exami Overcharging does no injury.
Complete discharging does no injury.
Can stand indefinitely charged or discharged
mathematical injury.

without injury.
With stonds rough usogo in daily
proctice because of the mechanical
strength of steel, iron and nicket, the
only materies usedicts problem boquase of Reiloblity and low Cost of

Edison Storage Battery Company

104 Lakeside Avenue

Orange, N. J.

# The Edison Storage Battery

For Electric Vehicles of Every Type



Whether it's a five-ton motor truck, an electric delivery wagon or an electric runsbout; whether on a long continuous haul or a run broken up many short stops and quick starts, the which equipped with the Edison Storage Battery will deliver efficiency and reliability in a degree beyond comparison with any other battery equipment and at far lower operating tost.

#### Read this extract.

regarding the run of one of the Macy Departmen Store's delivery wagons equipped with the Edison Storage Battery:

Recently a wagon was sent out, leaving the solve at about 8 A. M.; it covered 72 miles out and back up hill and down, making 45 stops for deliveries, and returned to the garage by 9:30 F. M.

#### And this

Hady & Co., the high grade carriage builders, of New York, recordly made a tip from New York or Philadelphi in one Therman Park of the Philadelphi in one Therman Park of the driver and two passengers weighed 350p pounds. The trip was made in 8 bones and the distance over cred was a distribution of the trip, were not "boosted" on the way and at the end it was found that 13 additional miles could builder in weight on the tip were not the part of the trip. were not not the trip were not the part of the trip. were not on the tip and the could be trip. were not the not down the part of the part of the part of the ten to the same night and the return trip made the next day. Many old line carriage builders are now contemplating taking up the family electric carriage, since the introduction of the Edison Storage Battery permits of its successful use, rather than the gas car with its uncertain future and the complications and which the desired presidents.

#### For Ignition

For ignition of gasoline cars, motor boats and stationary gas engines, the Editon Storage Battery gives the most reliable and economical service. It gives a hot blue spark that unfallingly ignites the weakest mixture, effecting a big saving both on current and fuel.

#### Lighting.

For search lights, head and tail lamps and inconleacest lighting of enclosed cars, the Edison Storage Battery should be an important part of the equipment of every motor while. Our bookiet giving full details, prices, etc., will be sent if you'll ask for it. Write us to-day.

Edison Storage Battery Co., 106 Lakeside Ave., Orange N. J.

#### Edison General File Series 1911. Battery, Storage - Electric Vehicles - General (E-11-16)

This folder contains correspondence and other documents relating to the commercial and technical development of Edison's alkaline storage battery and its use in electric vehicles. Most of the documents concern electric vehicle manufacturers, market development, and the products of rival battery makers. Included are assessments of the Phaeton (or touring car) made by S. R. Bailey & Co. of Amesbury, Massachusetts; promotional material for the Klaxon automobile horn, invented by Miller Reese Hutchison; and discussion of marketing practices involving central stations of the Edison Electric Illuminating Co. of Boston. Additional items pertain to the Electric Storage Battery Co. of Philadelphia, its corporate investors, and the promotion of its Ironclad-Exide battery. The correspondents include Arthur I. Clymer, an investor in the Edison Storage Battery Co.; Louis A. Ferguson of the Commonwealth Edison Co. of Chicago; advertising executive Converse D. Marsh; and longtime Edison associate T. Commerford Martin. There is also a postcard written by Edison's son Charles while in Morristown, New Jersey, testing an electric wagon.

Approximately 80 percent of the documents have been selected. The items not selected include duplicates, unsolicited correspondence with no substantive reply, miscellaneous credit reports, and blank questionnaires. auto Texto

## CAROLINA POWER & LIGHT COMPANY.

Some time ago you wrote the above company, of which I am president, something about coming through here and wishing to charge your electric vehicle. I saw a man who had been in charge of electrical power at some point in Virginia and he said that he had heard from you and that you were coming through in your electric vehiule in a few days. If you are coming through this way, I would be glad to know by return mail about what time I may have the pleasure of seeing you. The company has no mercury are rectifier, but I have for an electrically driven vehicle of my own and will be glad to extend to you every courtesy in its use.

Yours very truly,

President.

B.S. Exide ( ws bally st st Smith.

THE

# "Ironclad=Exide"

BATTERY

The Latest Development

in

Electric Vehicle Batteries

Bv

BRUCE FOR

Paper presented at the Meeting of The Electric Vehicle Association of America New York, January 17

# The "Ironclad=Exide" Battery

THE LATEST DEVELOPMENT IN ELECTRIC VEHICLE BATTERIES

#### By BRUCE FORD

Paper presented at the Meeting of The Electric Vehicle Ass ciation of America, New York, January 17, 1911.

It was my privaling last October to present to this association of paper on the Electric Validic Hustry, and amounteement was made of a mean try which The Electric Storage Battery Companing of the Battery of the Storage Companing were to be expected. The time has now come when can describe in dealth the construction and operation of the new lattery, together with an outline of its novel and advantageous factures. The name under which this new battery is being pre-sented in the "FrontInto-Exthe," which has been considered expecially appropriate in view of its great durability.

The new hattery is of the lead sulphuric acid type, and its principal feature of novelty resides in the construction of the positive plate, together with other features of mounting and connecting, which will be brought out later.

The flat plate form was many years ago recognised as the best electrode for both positive and regardine plates. The order of the positive plate is possible plate in the state of the positive plate is possible plate in the positive plate in the positive plate in the positive plate plate in the positive plate plate. The plate plate plate is plate plate plate in the plate plate

alkaline battery. Reference may be made to the Waddel-Einz type of alkaline battery (1889-1890) in which the active material was in the form of a cylindrical pencil, and also to the Currie plate of the lead sulphuric acid class (1890-1891). This particular example is clopen since it is among some of the older potents owned by the makers of the "Exibe" and the "froncing-Exibe" Batteries.

The new "Evocicio" positive plate is of this design. In god is composed of a number of panellel vertical meal toots, united at the composed of a number of panellel vertical meal bettom frames, extra the composition of the control of provide of leaf active material, which is its term is neclosed by a hand rubber tube supplied with a multiplicity of fine horizontal laminations to provide access for the clearly to the active material, and passages for the flow of current during the change and discharge of the plate. The rubber tube fits very snugly upon the active material, and its clansicity allows a certain come and go, maintaining its relation with respect to the active material during the alternate expansion and contraction of the latter in the orgones of change and delearage.

The oylindrical form is peculiarly adapted to perform this instance, and the amount of electrolyte surrounding each tube is just about the correct proportion for the active peacil. Each rubber tube is furnished with two oppositely disposed vertical rike, which serve to stiffen and strengthen the laminated tube and act as separators, entirely taking the place of the rike commonly provided upon the separators of cells using plain lift plates.

The negative plate is of the form used successfully for so many years in the "Exibe" Battery, but in order to enable it to withstand not only the increased capacity, but also the greatly increased life of the new "#TOICIGD=Exibe" positive plate, it has been made somewhat thicker.

The grid of the negative plate is of the standard "Exibe" design, facial horizontal bars on one face of the plate being in staggered relation to the bars on the opposite face, the whole being united by vertical ribs at intervals.

The wood separator, consisting of a plain sheet of veneer of appropriate thickness, is interposed between the face of the negative plate and the vertical ribs of the rubber tubes of the positive plate.

The positive and negative plates respectively are united into groups, their lugs being burned to pillar straps in the ordinary way.

An improvement on the pillar strap has been incorporated for the "Broncialo-Earloc" Battery, by slightly pointing the tops of the pillars, thereby making it somewhat easier and quicker to burn the connections. This modification is also being incorporated in the straps for standard "Extloc" cells.

The connector used in the "Tronclab" Battery is not rigid, as it is in the "Exibe" Battery, but is made of thin sheets of copper lead plated to protect the copper against corrosion, and provided with an alloy terminal at each end recessed to receive the rillar of the strap, to which it is integrally burned.

A battery assembled with these connectors has a very next

and businessilke appearance.

The claracteristics of the cell in discharge are similar to those of other types of lead storage batteries, the potential at the normal four hour rate starting well above two volts and maintaining a fairly uniform value throughout the discharge until toward the end, when it drops more rapidly. At 1.75 volts, the feel is marketially discharged.

Similarly its characteristics during charge are like those of other lead batteries, the voltage remaining fairly uniform throughout the major part of the charge and rising rapidly to its final value toward the completion of the charge.

The internal resistance of the cell, being about the same as hat of an "£E, the?" cell of corresponding sixe, the variation in capacity with change in rate is about the same. While its capacity decreases at a less than constant rate of change with increase of discharge rate, yet its capacity becomes greater at an increasing rate as the discharge rate becomes less. This is a valuable characteristic of the lead cell when the chapsed time of discharge is extended.

The capacity of all lead cells varies slightly with changes in the temperature of the electrolyte, and the change in capacity besides being comparatively small for comparatively wide variations in temperature, is almost uniform and so continues beyond any ranges to be met even under the most extraordinary conditions.

The new battery is rated initially as four and a laft hours at a current corresponding to the four hour me of an "EMDe".

Battery of the same size. For example, an MY "EDUCED' positive plate is rated at y ampares for four and a half hours. As the heatery is owded, the capacity will increase to from five and a half to site lours or even more. Case I have been recorded under somewhat special conditions where the capacity has reached were hourst at he rate before beginning to decrease.

The gain in exactly is now more in the capacity has reached were hourst at the more than the capacity of the capacity has reached and the capacity in the capacity in the capacity in the capacity is now more interest.

The gain in capacity is not merely temporary, and although increasing at a comparatively rapid rate it decreases very slowly, so that the actual capacity is considerably above the rating for practically the entire life of the plates.

The dimensions of the elements of the new battery were reported not to make "Irconclabe.Ethe" elements interchangeable with those of the "ExtDe," so that plates from #ExtDe "Intercape can be remered with a proper fitting element of the "Irconclabe.ExtDe" type. This has been accomplished by making the new plates in both W1 and IV wises, and appropriate thickness to be mounted upon the same plate center pacing as that of the "EXtDe." Since the ounside negatives in the "Irconclab" are of the same thickness as the negatives in the "Irconclab" are of the same thickness as the negatives in the "Irconclab" are of the same thickness as the negatives in the "Irconclab" are therefore the same as the over all dimensions of an "Irconclab" celement are therefore the same as the over all dimensions of an "ExtDe" element having the same number of plates.

Since the "Itoliciao-Exidoc" Battery will give four and a half hours at the four hour rate of an "Exidoc" of the same size, the capacity is 12/ per cent more. This relation holds throughout any practical range in variation of rate, sizee, as aircady stated, the internal resistance of the two batteries is practically the same.

The weight of an "Ironciao" Battery is about the same as that of an "Exilor" Battery of corresponding size, a 9 MV "Ironciao" cell complete weighing less than one pound more than a 9 MV "Exilor" cell.

It is in damability and decreased maintenance expense and terrested that the "TroutCab" llattery will demonstrate its greatest value. In number of discharges its life will be from two to three times that of the "XXIbC." On account of its greater rated output and also on account of its greater percentage rise above its rating, the suspers hour life (or, in other words, in mileage life) should be overe three times that of the "XXIbC."

This battery has advantages never before realized in any lead storage battery, and the resulus have been accomplished without sacrificing any of the valuable characteristics of the lead cell, which have enabled it to maintain its prestige for the last thirty years or more. These advantages inclinds:

l-ligh individual cell voltage. Low internal resistance.

High efficiency.

Ability to discharge at very high energy rates. Increased capacity at decreased energy rates.

Preedom from injury by excessive discharge rates up to and including the short circuit current, which is many times that obtainable from any other type of storage battery.

Immediate recovery from effects of overload.

Low coefficient for temperature correction and uniformity of its value, there being no critical low temperature, below which

the battery will be inoperative.

Accessibility in case repairs are necessary.

Accessibility in case repairs are necessars

Small danger of explosion.

A dilute sulphuric acid electrolyte which has the following advantages:

Variation in specific gravity, which, when measured with a hydrometer, gives an indication of the state of charge or discharge of the cell.

No injury by exposure to air. Relative freedom from injury to hands or woolen clothing.

Initial W. J. pe ll. 9/3

No soluble substances in the electrolyte to crystallize out and form a deposit.

In addition to the above features, the public have already learned and understand the simple art of earing for the lead acid battery.

The instructions for the cure and operation of the "\$Toneclabo-Exbto" listersy are very simple. The resultion of the active national restricts skolding, and the result is that these batteries will rarely, if ever, require cleaning. The rubber sheath being of instanting material, the danger of internal short circuits is therefore reduced. By observing the few salient factores of operation with which the public are on the whole already very familiar, the new battery becomes a very reliable and porfect piece of apparatus.

This point may be emphasized by calling attention to the very small size of the instruction book for the care and operation of the battery.

(hun'ha lin

product.

Our competition are very creative a send wen are people + they are holding out all al industries to prevent Mr. Thomas A. Edison, Orange, N. My dear Mr. Edison to you in connection with the woods of in Chicago Record-Herald, which I recently mailed you, -- wh endeavored in the boldest way to prejudice the public against Just before that, the Edison battery. oatalog. Then, upon noting their e I wrote them that while I had no reason to doubt the of that portion of the Woods car manufactured by them, I was greatly surprised to see their public attitude against the product of a name which has the landeres y ortgem, and a product which was not in competition with any article in their line of manufacture. I intimated my belief that this procedure

I noted, also, that in your addinthe Record-Herald following my sending you the Woods ad, that you call attention to the attampt being made to prejudice people against the Edison battery. I believe they have since abandoned these tactics

would surely prejudice the public against the Woods Co. and their They replied that they would be only too glad to equip

their cars with Edison batteries whenever desired, etc.

A. I. CLYMER

Mr. Edison, -2-

--publicly at least--and am plassed to note, in the enclosed "follow-up" (which of course is not a personal letter,) that they have come down outte handsomely -- for them.

I hope that there is a largely growing demand for the Edison, for trucking, as it occurs to me that this use of the bettery will be of three-fold value to the Company:

First, there is a pronounced disposition on the part of auto pleasure-carriage builders to give large attention to trucking and light delivery — the beginning of a world-mide revolution in urban merchendise handling, and this is the Edison's great opportunity to take a prominent place as a commercial motive power;

Second, the extraordinary requirements for power, mileage, lightness and <u>endurence</u> give the Edison opportunity to demonstrate its peculiar advantages in these respects; and

Third, I believe it will be a tremendous advertisement for the Edison, to be able to refer in a large way to the multitude of manufacturing, importing, wholesale and retail establishments of <u>national note</u>, who have adopted the Edison storage battery.

Such an erray of well-known names will be very impressive.

Yours very sincerely,

P.O.Box 351

A. J. Clymes

#### [ATTACHMENT/ENCLOSURE]

auto-

wads .

TELEPHONE GALUNET 1643, PRIVATE EXCHANGE

## WOODS MOTOR VEHICLE COMPANY



GENERAL OFFICES 2515 2521 CALUMETAVENUE

ARL J. HETZGER

Jan 17, 1911.

Mr. A. I. Clymer, Van Wert, Ohio.

Dear Sir: --

You have undoubtedly observed that there is a great variety in the battery equipment of Electric Gare. Unless other than the property of the property of the property of the property of the manufacturer. For your consideration, therefore, we call the following to your attention.

A wide car, that is, one with a great seating capacity, has more wind resistance than a narrow one, and for that reason requires more power to propel it.

A frail tire causes the car to consume less power than one which is of a more durable construction. The power that the car consumes is not in proportion to its weight; that is, doubling the weight of a car does not double the power that it consumes.

In designing the Woode Electric, we had in mind all along the matter of low operation coet, and at the same time a large and comfortable body.

To build a large and comfortable body means power. A low operating cost means solid tires and a battery with heavy and stable plates.

For all of the above reasons a large battery equipment is necessary, namely, 40 cells of the 9 M.V. Exide.

We use 40 cells of battery because this can be more economically charged from 110 volt direct current. Where this reason would not sty, as when charging from alternative was supported by the state of the state of

#### [ATTACHMENT/ENCLOSURE]

PORM 139-20H-1-10

## WOODS MOTOR VEHICLE COMPANY

SHEET NO

satee for additional weight of battery and greater life of poeitive platee due to eeries operation.

Battery plates are made in various thicknesses. Taking the standard [ar, it ie possible to put in either nine, eleven or thirteen plates depending upon which thickness is used. The fewer plates represent a greater life, and at the esume time a lower renewal cost.

When we first began to manufacture Electric Vehicles, we were entirely alone in the Electric Vehicle field. Our Entere adopted a forty cell equiptment for obvioue reasons, our experience of thirteen years has never shown us that our first idea was anything but absolutely right. There is not another Electric Vehicle Emuracturer to day who for more than two esasons has used the same battery equipment, and the tendency is toward the forty cell battery equipment by all the vendors of Electric Care who can arrange to have the car they represent equipped in that manner.

This is mentioned to show you that Woods Care are designed along predetermined engineering principles rather than by a out-and-dry method.

In this connection we beg to state that whereas we have always heretofore furnished the type of battery described above, we are not unsindful of the fact that the new Edison Batter, and the state of the fact that the new Edison Batter, we very earnestly hope that the claims which are being made for this battery will be realized in actual results. We are therefore now building our cars to accommodate the Edison Battery and if our customers desire this Battery will be glad to emply it at the additional cost of same, although for the present our preference is for the Lead Battery who is a known quentity and has proven its worth.

If there are any points in regard to our Battery equipment not entirely clear to you, we should be glad to have you write ue and our Engineering Department will take pleasure in eending you a report that will specifically cover your inquiry.

Very truly yours,

General Salas Wanager.

January 21st, 1911

Mr. Churchill:

Attached herewith please find half a dozen copies of leaflet that we have just had printed and which we expect to send out, to Klaxon Horn owners.

HRL/GPW.

#### [ATTACHMENT/ENCLOSURE]

MILLER REESE HUTCHISON ENGINEER SO CHURCH STREET NEW YORK

December 14th, 1910

Edison Storage Battery Co., West Orange, N.J.

Gentlemen,

On May let., 1910. I placed one of your 2-4, 5 Cell Ignition Batteries on my automobile, for operating my Klaxon Warning Signal.

Since that time, now practically eight months, my car has been driven approximately I2,000 miles in daily service.

During this entire period I have never put a drop of water in the batteriee, AND HAVE NEVER CHARGED-THEF.

They have never failed to operate the Klaxon, and are today up to full voltage and oridently good for several menths more, before re-charging will be necessary.

I consider this a wonderful performance and, as the inventor of the Klaxon, cannot too highly recommend your battery for use therewith,

--

### [ATTACHMENT/ENCLOSURE]

May we send you a Catalogue and other information about the new Edison Storage Battery?

> Edison Storage Battery Co. 101 Ashland Avenue,

Miller Reese Hutchison invented the famous Klaxon Horn for automobiles.

Read what Mr. Hutchison says about the Edison Storage Battery.

C/o W. arter 177 W. Baylodon S Purd of Jun 1911 Worcester mass. ou checken rebuscon There is very tiller in supposed of continue Snange N. J. Here a sure of well will be sure of the same consider a beds stime. It have a special sure of sure of these a special sure of the same a special sure of the sure a special surely of the sure a special surely of the surely of th Mr. 7.a. Eduson Grange N. J. Dear Su made a especial estudy of the problems, in connection with "Regenerative control or braking of electrically propelled vehicles" In my investigations I shoroughly analysed Dre .-(a) Raworth system (b) Lundell " Both Rawoodh, & Lundell, recognize That a shund wound motor, although, quite suidable for regeneration, exhibits a very poor performance, as compared with the series motor for motoring purposes; The well known automatic variable gear radio effect

known automatic variable gan radio effect of increase of field whength, with increase of current, a consequent decrease of speech, (Thus reducing peachy books) which is a value the inherent quality up he series motor, gives the latter a great advantage, over the shirt motor for general chacken work.

To overcome This defect Raworth & Lundell compounded Their motors, Thus combining The valuable features, of The shund I series field coil. Neither system however appears to have med with any great success for The following reasons.

(1) Guing Ito restricted space on The motors, The full advantages of compounding cannot be effected or realised.

(2) The shund current being under the motor allows of any under the motor, sendon the alusine was of the motors, in The hands of a carless motorman. (3) The shund current is a source of great waste; on the dials of the dundels system which is a double series parallel system, ( Double commutator mothers employed, The object in view being so avoid seares wheavand besses) The saring iffeeled in series wheastals, was gust balanced by The increased field losses.

I have derroed a system, which I consider us a great advance on either of the sture cided above. It may be truefly charactarised ly she following points.

(a) simple series motors employed

(b) adaptable of for both D.C. or a.C. (singlephone) work (c) andomadic condrol, There being only one regenerative notch on the controller, he

(3)

regenerative output being automatically constrolled, by a differential magnetic action of the field cails. The regenerative current investing as the speed decreases, this being a valuable feature from a commutation point of view.

(61) as there is only one regenerative mother, the system is footproof? The abusine use of the mostors is an impossibility (E) the additional complications to the car equipment with the eocception of a small field coil grouper,? an escha moster on the most controller.

any developments in Electric charter field. I should be very glad to have an opportunity to explain my system to you. I may say I have already third to inderest the general Clerkic G. I he Westinghouse Co., but as neither have answered tony letter, I can only conclude that my scheme does mad appear to them. Trusting you will give me an opportunity to make good.

Yours faithfiely

S.7. Webster

## Nestor Electric Behicle Company

EDISON STORAGE BATTERIES

LANGEN "EDISON BATTERY" TRUCKS
BAILEY "EDISON BATTERY" BIDGISS
PEDERAL "EDISON BATTERY" CAR CO.

137 HAYES STREET, NEAR VAN NEES AVE.
TAPPONER MARKET \$173

SAN FRANCISCO. CAL.. Feb. 4, 1911.

Mr. Harry F. Miller,

o/o Edison's Laboratory,

Orange, N. J.

My dear Harry:

I take pleasure in introducing to you Mr. George H.

Stoddard, general manager of our company. He is back there on a mission, trying to arrange the financial end of the company.

You will find him an energeth gentleman and any favors you may show him will be greatly appreciated by me.

With kindest solicitation for your family and yourself, I beg to remain,

Yours sincercly,

Conto Mestor

Feb.11, 1911. Mr. Thomas A. Edison. West Orange, H. J., Dear Sir.-Will/you kindly recommond an eletric automobile using your new storage battery, and suitable for a woman to operate. Your attention will be approciated, Yours very truly we was a superior

Would you please tell Me how many Miles your letest batterys will run on one Charge with a car that will carry two or four people, your name Signed to Ut, our hills or berroads. The man Rugust 12# 1910 That year was you wrote to, Mr M. W. Colby Supt of about to make a luniber of "The Lancaster of Efferson Electric Co, Cesto with Sensal Eliotric automobiles Equipped with your hew type of latting is a fine man, he would like to I writed the paper to find out when aid you in any way to could I watch the papers to find out when great put into use all oren this I was sorry for a did want your Electric Cutomeriles sporonup his: Country and Especialy in This There are plenty of the other Rinds, but town of Lancester U. H. Lancaster ne Electrics. Partie that handle the is called the Switzland of Americally other Kind of autor, say that Elictrics The Courset who come here from all au not practical, in climbing the parts of the world you do that hills in Kent Sampshing Comont. remember Me, but Ada you when you was a Rail Road Man and But & Think they Can.

J was an American Expre man, in Chicago emmons, D. Girenan. P. 0136 236. Lancaster, U. H. March 29 1911.





BROADWAY, SINT STREET & 71% AVENUE,

NEW YORK. March 22, 1911.

Edison Storage Battery Company, Orange, New Jersey.

Gentlement

Replying to your inquiry of yesterday, beg to inform you that price of our electric broughem, full size, accommodating two persons is \$4,000, additional for Edison's improved storage battery, consisting of 60 cells, type 4-6, \$1,200, or in other words \$20 per cell net. Medium size broughem, same accommodations as shove \$3,900; cost of battery according to number of cells and type.

Onnoerning equipment, these vehicles are fully equipped for city use, pneumatic tires, lamps, signal horn, emmeter, etc.

Painting, lining, etc. to one's fanoy.

Trusting this information will serve your purpose and assist you

in placing your order at early date, we are

The made wer ft

(LW 4/5/11 BS- TAE Say I have untired building out the control of the Edison Laboratory Machine so much but deeide to wait if this is treve about Edisons If so will I am going to write this he deliver any this year. inquiveing letter wheather there are somany I leceive & reply or not but have told other allively I will wait for one at any rate. We have a friend that told want one I know us about reading of Edisons We have one of Edison Rhonograph, Loncan equal workings on all Outo or This it, now del we lack is it was to burn This Friend an anto is well to do but he will not but his money in a gaselene yours Truly. ps. Robt. Collier. for Electric Edwalbay says Difor, he is waiting for Edistrict ox 95 - calif. 4 that is what Jam going to do although, destre a

Electivo Valuate infrio The Anderson Conninge finz Electrics the Edward Calle Cololoque

March ats

Warch 25, 1911.

Mr. Edison: -

I have been devoting a good deal of my time to getting matters started in Boston.

The preliminary results have been certainly "electric".

The only thing that we have to guard against is too much enthusiasm at first. After all its a long fight.

Four manufacturers have established Boston connections which includes the Landous, the Walker, the Fauch & Lang and one other, whose name I do not recall at the minute. All the eagenth have bought demonstrating rige. Three others have asked the company to hunt up good agente for them, so we are rensembly sure that things are going to hum.

We are doing a good deal of publicity work in the daily papers as well as the trade papers and are trying to induce the manufacturers, representatives and dealers to do their share of the advertising.

It looks like Boston will eventually turn out a big winner.

We have a whole program mapped out ahead to keep the interest
of the public and the manufacturers at high pitch.

The next thing on the program is a meeting and a dinner to the local dealers and representatives next week. We will at this dinner try to carry out your field of showing absolute necessity of long demonstrations of both Pleature Vehicles and Business Rigs. There must with some affording on them.

Also we will put in an earnest plea for "team work" among all the dealers and representatives that they drop knocking each

other and all sail into hammering the gasolene our and incidentally during the sell Electric Automobiles for business and pleasure.

We will also at this meeting try to draw out all the Vehicle people and get them to make suggestions. We will announce at the meeting that the Company proposes to give free electric signs to every Electric Vehicle dealer in Boston.

Another thing, the gas truck people have sold a great many more cars than the Electric people, because every time a prospective buyer came up, there have been eight or ten gas truck fellows climbing over each other. If the machinery of one fellow did not quite hit the merchant or menufacturer solicited, the percuasion of the special features of some other truck did. Moreover, the effect upon a possible customer of being solicited by a crowd instead of one or two men only bears the ear-marks of success instinctively to his mind.

We are going to play that on the Boston people, New Y X will foot the people of the stirred up, like I have Boston, the fever will spread over all the Central Stations of the country, and I believe that it would be a good investment for you to pay me the unall amount involved to send me out to Chicago to stay four or five days and get their organization are to do just what Boston is doing.

Why, Mr. Edison, if the Central Stations of this country once got worked up, their own demand will keep all the manufacturers of Electric Vehicles in this country running night and duy, and you couldn't possibly build enough batteries in the next two years to supply this domand alone.

Boston will spend over \$200,000 on it's own equipment before it finishes this year's work, because they have to have about 100 Electric Vahioles of all kinds. Multiply this by the other bight stronger of you have get an enormous total.

I hope you will agree with menthat I am right on this.

GENERAL ELECTRIC COMPANY

DESCRIPTION, N. Y.

BOSTON COTTON S. STREET

SCHENERYADY, N. Y.

BOSTON COTTON S. S. STREET

S. STREET

When I last telked with you you street that

you would answer my letters personally you be throughour

Secretary, so I am trying it egain in byte that the will

reach you.

### [ATTACHMENT/ENCLOSURE]

GENERAL ELECTRIC COMPANY

In Reply Refer to

SCHENECTADY, N. Y.

BOSTON OFFICE, 84 STATE STREET
April 7, 1911.

Mr. Thomas A. Edison,

Llewelleyn Park, N. J.

My dear Mr. Edison:-

I am just in receipt of the following letter, dated April 6th, from one of my oldest customers and evidently one of your oldest admirers, W. K. Dana, Treasurer of the Dana Warp Mills, Westbrook, Maine.

"I am sorry to have troubled you this morning but I want an electric or geneless truck to do our teaming. I prefer an electric one to the geneless ones. I want to get as near headersters as I can on the Adison bettery as I have an early and in the second of the second

out of patience with them sometimes. This morning is one of these occasions.

Anything you can do or any information you give me will be thankfully received."

I am sending you this letter as I know that you will be interested in same, and it also recalls to my mind the many pleasant remembraness I have of the connection which I had with you many years ago. I enclose a couple of blank cards. May I ask that you gend me your autograph so that I may send ane of them to your old friend down in Maine? He is a man of seventy years and to look at him you would think he had no intelligence at all, but he is a typical "Down East Yankse" and I know you would be pleased to meet him:

ours very truly,

Buttery - Evide

Edison Storage Bettery Co., You are night start to Elea Valuela

Mr. H. F. Miller, Secty., Concerned three are 2 y knows of

Deer sir: one the wands of Charles in the street over an longe clock we have the street restrict type testerising as we

Chicago Record-Berald. It cooffires to be that your stry, dept. sight be able to sake use of this reflections to the sake use of this reflection to the sake use of this reflection to the sake on segment infravoj of the sake on segment the Exide. I believe it rould interest to reflect if he hear't stready seen it. Column to the sake of the hear't stready seen it.

In looking thru "the "joi, edition of "spare" of less a coall of shedular of injection in formation, I notice that the Electric Storage Estimate, is stated as "owning stock of several companies samutacyring suto-mobiles" with doubtless accounts, partly, for the sect that some of them sention the Edison lest—altho, very likely, they think it is not to their interest to recommend the Edison specially as being essential to the highest efficiency, their prices for the bare cere being prohibitively high for most sate users.

I presume your region to a present acter, with lit., is on way.

Yours truly I former

[ATTACHMENT/ENCLOSURE]



April 29, 1911

Rdison Storage Battery Company,

Orange, N. J.

Mr. B. F. Miller, Secretary-Treasurer,

Dear sir : Your favor of 27th inst. is at hand and I em delighted to read that you are unable to keep up with your orders, notwithstanding the fact that capacity is being continually incressed.

I think you overlookt my request for four sets of literature on batteries for automobiles, including four of your latest illus-Hoping to receive same by return meil, for trated catalogs. immediate use, I am

Yours very truly,

POST.

The open may be used for
Commenced and the Commenced and th

ago.

Robert Sedgwick Insurance Office of Franks DuBois 14 William Greet

New Work May 23rd, 1911.

Thomas A. Edison Esq.

Valley Road,

Tonly many columns the run Otoring & a Charles to run Electric Caro - Illinks she 89, 303

My dear Mr. Edison:

I hope you will remember me as a neighborhof yours i Liewellyn Park when I was living there some fourteen or fifteen years 1905

A lady oustomer of ours wishes me to inquire of you what automobile building firms handle your electric engine and put it in their oars. This lady is Mrs. Clarence Cary, and she is somewhat of an invalid. She has ridden in a number of electrical machines, and tells me that your engine obviates the jolt and jar and is the smoothest running engine she has ever seen. She wishes to build an automobile after her own ideas with your engine in it, and I shall be very much

> Hoping that you are quite well, I am, Yours very truly.

obliged if you will tell me what concerns use it.

Robert Sedgurals.

There are a number of we re keens caf Electrics, The most expenses "best is built by Healy ? C. my used by JA Morgan + people of that type, The other builden of land Expenses cares are the Decrait Electric, The Baker Electric both have affected ulfork a bull of cars for the Edwar Cattery = If whe sands around to Them asking to ace on Eliebric with Columbiation & amoures they would come them to have 30

Jane 5,11 a Tun Edison sefarate cover, in a forma kuid gway, a full refort on Bailey machine, because I through you would like to have it in that was I want It say to you personals, hoven that I have got lots of and pleasure art of the ohne and an deepl affreciative of your great of to

NATIONAL ELECTRIC LIGHT ASSOCIATION

N P GILOURIST PINAS Y NIE M TAPP SHOPE VIGE-PRESS WIT W HURDHIT GREENL COUP

Mastes or TRANSPORTAL

Ocheron Lager June 7. 1911. NEW YORK. June 5, 1911.

JUN 6- 1911

T. A. Edison, Esq. Edison Laboratory Orange, N. J.

Dear Mr. Edison:-

I thought you might like to receive, as I promised you, a full report of the operation of the Bailey phaeton. I intended at first to keep you adviced from time to time as different troubles developed as noted by my son Kingsley, but we soon made up our minde that this would be an endless job and would give you the matter in detail. I am now sending you in him handwriting a statement which he made up for me yesterday and which gives, I think, without further comment, the actual status of the case. I agree with Kingsley that the machine is not a commercial proposition along its present lines, although both the battery and the motor are in splendid condition. If you would like to have my eon come out and see you to go over the points of oriticism. I should be very glad to have him do so after this week. Just now we are busy cleaning up after the great convention, which closed with a total attendance of 5200. We were all delighted to have you come in and you can judge for yourself from the reception you got how pleased everybody was to have the opportunity to pay their respects and homage. My force here is so buey cleaning up after the convention that I cannot take them off

(c)

to copy this document but it will not take you long to run through it.

Believe me with regards, ever,

Faithfully yours, June Secretary.

from settle machine is laid af and out of commission.

BS-TAE Edison Storage Battery Co., Wz and devel Orange, N. J. Mr. H. F. Miller, Secty.-Treas.W Dear sir : I have just read Th other papers, of Mr. Edison's annous perfected the Edison battery until it may now be ch three to five minutes for a fifty to sint wile pun condebet the battery for a delivery wagon could be held in a suit-case Will you be kind enough to rever as the bary this is correct, and how soon you can fill orders to illness in the family, I deferred buying expleas this spring, but if the new battery delivery, I shall be very glad to act of once.

It occurs to me that the greatly dep weight will justify a much lighter our and perhaps a plan as to battery-space. If you will kindly sugar information in this connection, and advise the price and of cells suitable for a pleasure carriage, I shall be obliged

brougham.

A. I. CLYMER

VAN WERT, OHIO

Does Mr. Edison recommend that carriage be equipped with several groups of cells, with the intention that first one and then another group be attached, until all are exhausted ? Or, could all be attached in one circuit ? I will ask, also, whether 150 to 200 miles could be covered as before ?

Awaiting your courteous reply, with as full information as you are now able to give to my inquiries herein, I remain

Very truly yours,

P.O.Box 351

2

P.S.: Will you please mail your earliest literature as soon as ready.



TELEPHONE CONNECTION,
CABLE AGORESS TURGENS, BROOKLYN-NEW YORK

CODES POSTAL UNION

REFERENCES ALL MERCANTILE AGENCIES.



Windesale Grocer Mordiant

Commission Flushing Avenue and Rygron Street.

Porodlyn NewYork June 5th, 1911.

Nr. Thomas A. Edison, The unprocessed over not JN 6- 91 mety
Orango, Now Jorsey.

Doar Sir:
Doar Sir:
Doar Sir:-

I have must change a contract for one of your large batteries for my Electric voltage and I notice by westerday morning papers has you have made considered to my settled for the original contract of the con

I enclose a stamped envelope for rep

W. B. A. Jurgens.

JMS. by How

112 Willes St 05-1A1= Hest Auton mass June 6.11 Report not connect we two Dear Vin: which ca said to have been n My of the talional 6 all had produced a or lity miles and propelling an auto Tifty that could be charged in a few infunction. state the librity to mute you locating of this report is true and if so whether the new futtery sould be readily adapted to one of the old sleatice vehicles wirkout queat expenses Could you at present gives any idea of the probable cost of ruch a buttony. when put on the market : Very Truly Jours

auto - Baily

Diehl Manufacturing Company

Mr. Thomas Edison, Orange, N. J. Dear Sir: -

can give us will be very much appreciated and we assure you will be treated with the strictest confidence.

Yours very tryly,

DIEHL MANUFACTURING COMPANY

auto . Gail THE EDISON ELECTRIC ILLUMINATING CO. OF BOSTON. General Offices, 39 Boylston Street. Thomas A. Edison, Esq., Llewellyn Park, N. J. My dear Sir: with the suggestion of Mr. William H. Atkins, General Superintendent of The Edison Electric Illustrating Company of Reston, and forward to you a couple of the pennants we have recently like make for use in comments of the pennants we have recently like the pennants we have recently like the pennants we have recently like the pennants with our pennants of the pennants with our pennants of the pennants with our pennants of the pennants with the pennants with the pennants of the pennants with the electric vehicle campaign. We are giving these to the users of electric vehicles of all kinds, and they are generally proud to fasten them on their cars for the advancement of the cause. Yours very ntendent of Advertising. B. Stowar - Su

July 15, 1911.

Mr. Miller:

Regarding the attached letter. I took same up with Mr. Edison Friday night, and he said we could write and toll them that Mr. Edison would be glad to sell them all the batteries they could use, but he intended to build motors for his production only and that they would not be on sale for the present, at least. They will be used entirely by the Lansden Company and Mr. Edison's new delivery wagon.

Badman

### [ATTACHMENT/ENCLOSURE]

THE PROOF FORT HILL 3365

SAMUEL WALLAGE, JR., MANAGER.

### The Electric Wagon Company

LANSDEN ELECTRIC WAGONS. FOURMENT

FRISON BATTERY Sole Agents for

The Launden Company, of Newark, N. J.

35 Federal Street, Boston Room 521

July 7, 1911.

Mr. Thomas A. Edison.

West Orange, N. J.

Dear Sir:-

Perhaps you will rocall the writer's visit to you with Lir.

Ina Hiller of Westfield, Mass. something over a year ago. Er. Hiller at that time was, one of the directors of the Gouplo-Gear Freight-Theel Company.

COMPANY A TOWN TO A GRUNT EMPTY. Under the visit of "Who Licotrio Wagno Company" is have a time last March been acting as sponts for the Lanzelen Company. Frior to that, for senething over a year, the writer did what he could to affort sale, on the Lanzelen produce without an agency contract. As the books show, we have been neeting with rather indifferent success in marketing the Lanzelen product and after contributed. indifferent success in parketing the Landesh potential at the coefficient consideration have come to the conclusion that this is mainly due to the fact that the product is listed so high. This, to our minds, also applies to the product of composing manufacturers.

We find that the purchesing public seems to be roady to buy

electric wagons. We are having the solvie co-persition of the central stations. It would seen that under these conditions the business should come now with a rush, but it does not. The manufacturers and their egents are unable to show in the majority of cases that the

prices asked are justified.
We have now decided here to assemble some light delivery

We have now decided here to assemble some light delivery vacous along the generally accepted lines, and also to do the same with industrials. We can buy the needed parts and put then together to be sold at a price for under anything now offered, with a reasonable profit to ourselves. We do not include in our plan large expense for such things as over-head, advertising and salesmen town and had a long talk with it. Leally of the Storage Enttery Co. is in own and had a long talk with it. Leally of the Storage Enttery Co. is now and had a long talk with it. Leally of the Storage Enttery Co. is the own and had a long talk with the control of the communication of the control of the control of the control of the count. He also gave us some very interesting information about your nextly designed low voltage noter which embles a vehicle to climb steep hills without much dropping of voltage.

hills without much dropping of voltage.

If you fool that it would be advisable, and will give us an appointment at your conventence, we will be glad to come over to see you about all this, and to got your advice, any time next week.

Yours very truly

WEE/GFB.

Dec enclosed tolgon = I started yarage in change with motion lands were what came

in anto TELEPHONE FORT HILL 3368. The Electric Wagon Company Sole Agents for The Laneden Campany, of Newark, N. J. 35 Federal Street, Boston Room 521 botr. 19th, 1911 Thum a . Ernon. Morange, n. Y Mustin to you watch of a moly.

TAG . Hand c/o Edison Laboratories East Orango, Now My dear Mr. Edison; Since receiving your letter of the 12th, tg gether with tolegram from F. E. Price to W. C. Anderson regarding the charge for service at the Edison Garage in Chicago, I have had one of our engineers looking carefully into the mothed of operation and have had him discuss the matter with Mr. Price. . . . the Edison Garage is boing billed on our regular automobile charging, the same as other public garages in Chicago are paying. The trouble with the Edison Garage is, the consumption at the present is very small, running only 3,500 KWH. per month. The quantity at the secondary price being stall the rate carnod is not low enough to come below our framum frice of five cents per Kill. If the Edison Carage Food do the Sufficient business and doing their charging over long periods indie short periods, the rate would go doye based in such a way as to enapy the longest hours per day engineer whom I have had look that advised me that if the charging is por

would probably run about four cents per l

Mr. Edison -8-

I am sending you enclosed a copy of our power schedule for this class of service so that you will see at once that if the operation were good, the rate would be low.

You probably are not aware that our rates here in Chicago are regulated by the City Council, and that we are obliged to publish rate schedules for different clauses of service and are not allowed to vary from these schedules without giving the modified rate to all consumers. Before writing you I have explained the whole situation to Mr. Insull, and he has told me that under the circumstances he could see nothing that we could do in connection with the matter of the rate for electricity.

I am extremely sorry that I am unable to do anything for you in connection with this matter, and trust that you will understand our position.

Yours very truly,

Second Vice Preguant.

L.A.F. HW



Mr. W. C. Anderson, Anderson Electric Car Co., Datroit, Mich.

Dear W. C .-

There this morning finally succeeded in having a conference one with L. Revenues of the Commonwealth Edison Company. To make a consister story love I was told very political that there would be no account of getting a lower rate at the Edison Battery George and that the Chicago Commonwealth Edison Company as a company could not recognize Mr. These. Edison as of are a rates were concerned.

Mr. Ferguen has written Mr. Edison to that effect. Mr. Ferguen brought my the natter of the charging outfit which had been placed in the Edison Storage Garage stating in a very gentlemenly menor hie opinion that in a way we had repudiated the hill for this work. He stated that at one time in talking with Mr. Edison, Mr. Edison had stated that at one time in talking with Mr. Edison, Mr. Edison had read that at one time in talking with Mr. Edison, Mr. Edison had read that the was starting a garage in Chicage green "Do what you ing apparatus would be a proposed in the company of the place of the state of the company of the company

I am having an expert go over the probable cost of installing the outfit at the garage and an quite certain that I will be able to state on good anthority the company of the property of the state of t

Mr. Ferguson seemed quite annoyed et there being any discussion as to our payment of this charging apparatus and I was quite insistent that the charge of the charging apparatus and I was quite insistent that the of the Anderson Richeric Ger Company notther may the action enthorized by anyone in our company. Mr. Ferguson seemed to think that the R. Edison had over-etepped his hounds when he gave you to understand that he could do mything particular toward scentring any concessions from thes.

I give you this information as a result of my conference this morning with Mr. Ferguson.

Mr. Forguson states regarding the power price that their prices are governed by law and that under this law they cannot give special rates to any particular consumer, no master who he may be assertiance of this fact his handed me the bocklet which I am mailing approach. The state of the second property of the second pro

Mr. Ferguson showed me a letter which he had written and was about to send to hr. Edison regarding this matter, the gist of which was to the effect that there would be no discount allowed the Edison Storage Battery Garage for power.

Yours respectfully,

ANDERSON ELECTRIC CAR CO.

DISTATED BUT NOT BELL

J. F. Frice

### MEMORANDUM FOR MR. EDISON

October 31, 1911.

I have the name and address of 65,000 owners of Klazon horns Some of these are of course jobbers and dealers but quite a number of them are individual owners. I think it would be a good plan if I make some sort of an arrangement with the Riscon Storage Battery Company, whereby I would get ignition sets at 20% off, and conduct an aggressive company with the Riscon owners, offering for one month? or a set of the result o

If you are willing for me to do this, I will probably tac his san bryden onto any pay roll, or make some set as a rangement with his to whack up on the rowliss, and let him strend to the detail. I think I will be able to dispose of quite a large number of batteries of this plan. I might also put a few ands in the Trade, Journals addressed to the owners of Klaxons, which would reach them very quickly.

I am anxious to see some quick results on this battery sales proposition, and think I can build up a nice business on this Klaxon battery.

M. R. HUTCHISON.

Bar-gun (1)

COMMONWEALTH EDISON COMPANY,

EDISON BUILDING, NEW NO. 120 W. ADAMS STREET

CHICAGO, ILL.

Hovenber Bth, 1911. And Samuel

Mr. Themas A. Edison,

Orange, New Jersey.

My doar Mr. Edison;

I was very much diseppointed to read Mr.

Price's letter to Mr. Anderson under date of October 25rd,
which you were kind enough to send me, and which I am returning
herowith, as it does not fairly describe my interview with him.

I tried, as far as I was able, to be courteous

and fair, and an very much surprised that Ir. Price should quote me as thinking "that Ir. Edison had over-stopped his bounds when he gave you (ir. Anderson) to undorstend that he could do anything particular toward securing any concessions from them". I am quite positive that I made no such statement, but as I romember it, this statement was made by Ir. Price himself after I had explained to him that, owing to the fact that our prices were governed by the lumicipality, it was impossible for us to make any domicedator for them, however much we would like to do so.

I am quite sure I told him it would give me great pleasure to do enything for Mr. Edison, personally, that was in my power, and I was extremely sorry that in this cass I was unable to do enything toward medifying the rates.

As I wrote in my letter to you, I talked

with Mr. Insull before writing you, so that there would be no

Mr. Edison -2-

stone left unturned in my endoavor to do whatever I could for you to help you in this particular situation.

I trust that your knowledge of me and my method of doing business is sufficient to assure you that as for as I am personally concorned you will have a "square deal" in Chicago.

With kindest personal regards, I am,

Your fory truly,

L. A. F. HW

mon por gen(2)

COMMONWEALTH EDISON COMPANY,

ECHOON BUILDING, NEW NO. 120 W. ADAMS STREET

CHICAGO, ILL.

November 8th, 1911.

Mr. Thomas A. Edison,

Orange, New Jersoy.

My dear Mr. Edison,

I om this morning in the object of lotter from Mr. Bec under date of Movember 6th, to which is attached Mr. Klingelsmith's letter to Mr. Bec with your notation on it to mo.

I am very glad that you brought this matter to my attention personally, as I shall take great pleasure on your secount to go into it cerefully, and will rake it my personal business to see that Er. Stanley Field is proporly acquainted with the facts. You have probably drawn the conclusion from what Er. Klingclamith wrote hr. Bee that I have been advising it. Stanley Field on the dotail of these matters. While it is a fact that I am personally responsible for the purchase by Mershall Field & Company of Edison batteries for their trucks, I have not gone further than this, and have not followed the operation of the batteries since they have been installed, and was not aware until I road Er. Klingclamith's letter to Ir. Bee that the conditions were so bad.

Mr. Klingelsmith' was in my office yesterday and talked with me about the matter, but as I was getting ready for a meeting of representatives of the public utilities in Chicago, in a few minutes, I was unable to give him the necessary time, and asked him to talk with kr. Luun.

I wish to assure you that the Edison Storage battery

Mr. Edison. -2-

will have my personal support as far as I am able to give it, consistently, and it will be a great pleasure to me to de anything I can to help you in this territory.

Yours very waly.

Second Vice President.

L.A.F. HW

, Bar rod

THIS LETTER SENT TO ALL THE ELECTRIC VEHICLE PEOPLE.

### THE BATES ADVERTISING COMPANY

OFFICE OF CONVERSE D. MARSH CHAIRMAN EXECUTIVE COMMITTEE 15 SPRUCE ST. NEW YORK ENTRANCE TO OFFICE PLOORS 5" STORY

NOV 3 3 4 1 November 11, 1911.

Thos. A. Fdison, Fsq.,

Orango, N. J.

I'v donr I'r. Edison:

The policy of the Boston Edison Company is broad and liberal. In its desire to help accentuate to the Trade Press the rapidly prowing scope of the Electric Automobile, they gave the "Commercial Vehicle" these four pages of advertising.

The trouble with the Automobile Trade Press is that they don't get enough support from the Floctric Vohicle Industry.

You observe that the Boston Edison Company is going very far afield in its errnest desire to benefit the Trade in general, as well as itself in particular.

The Poston Edison Company will help any corcerted movement among the pleasure vehicle makers just as it has by this advertisement endeavored to secure the co-operation of the "Commercial Vohicks." yours very trups,

CDU-E

Encl.





# 520 Square Miles of Electric Automobile Activity

Within the 570 square miles of territory served by The Edison Electric Illuminating Company, of Boston, lies the greatest natural field for Electric Automobiles that exists in this country. Because of the great wealth per capita, the density of population, the splendid roads and highways, the many beautiful inter-dependent suburbs and this rich community's great enterprise and progressiveness, which has made Boston a remarkable electrical center-

Because of all these facts, this territory is particularly susceptible of cultivation by the electric automobile interests.

Taking advantage of the natural conditions, The Edison Electric Illuminating Company of Boston began six months ago an active eampaign of Publicity and Cooperation that will embrace a period of three years.

It has already succeeded in increasing the demand for Electrics in this New England Territory to such an extent that:

tent that:

1. The number of manufacturers branches and agents has more than doubled.

Yet so greatly has the business increased that the older established houses, without exception, report an addition of from 100 per cent. to 200 per cent. in their

This great change has been brought about in the short period of six months. It has been brought about, not alone by The Boston Edison Company's advertising, and the Company's substantial and growing purchases of Riberties in its own business, but—

The cause lies even deeper:

The Boston Edison Company is giving the support of its own complete service and its active co-operation to both purchasers and manufacturers of electric automobiles.

That the use of the words "Service" and "Co-operation" are not idle terms may be judged by an examination of the next succeeding pages.

PLEASE MENTION THE COMMERCIAL VEHICLE WHEN WRITING TO ADVERTISERS.



This is an illustration from one of the company's four beautiful by on the press. The illustration cell of the P. W. Rock, the by on the press. The illustration cell of the press. The press of the pre



One of two electric signs erected—Mattapan and Chelsen. Locations were selected by the Electric Vehicle Club's Sign Committee. The installations cost the Bostone Edizion Company \$1,500.00.

A moving electric sign flow being installed cost approximately \$6,000.00, with a remail of \$1,000.00 per annum.

### Service for Purchasers of Electric Automobiles:

The Edleon Esectica Blumbaching Composity
of Boaton into always taken yide in the excapitional Sorvice which it renders customers,
Many years before public advertising heralled the word Sorvice in connection with
the Automobile Industry it was a synonym
for satisfaction with customors of the Boaton
Composity.

The same theroughness and yattsfeatle will characterize its Auton

Note the Service rendered:

1. A separate department under a ther-engisty competent electricol and automobile engineer furnishing free consultation and ad-vices for prospective purchasers.

rea for prespective purcussers.

2. Moreury nrc rectilier sets far publia garages cest atout \$715. The Boston Edisan Company installs mercury are realifier sets complete in public garages, abreying only a naminal rental.

maninal restal.

2. The Boston Hilsen Company's method of charating for electric current is portlessionly pitroctrix at public agranges, because the seasily damand over a considerable number of home during the night curren a decount viable makes the net rate generally as low

as 2 to 3 cents.

4. In an advanced Creater Beater there are an advanced or an advanced Creater Beaters. In advanced Company Manuscript Clarging Plants. The Company stands ready to be a company stands are any resemble cettent its patterns are manufacturers Suggest.

5. The Denic can be a company stands are any commercial centre its patterns are manufacturers suggest.

6. The Denic can be a company of the company of any commercial adective automorphism of any commercial adective automorphism of a company of any commercial centre of any commercial centre consistency of the Electric Vedicia.

Electric Velide.

4. The Death Edison Campany runs a 185,400 gareno, under the awapless of the Science Velided Ashboritain of Americe, as a made plant to instruct menutnoturers representatives, aperaters and jurages dwares in the expert care, open tain, sorvice and maintenance of Electric Autoenshibe.

remanne er Effectra Autemebilies.
7. Through its Diestric Autemobile Department the Cemberry assists in securing proper equipments and intelligent labor for the benefit of its petrans.

2. The Parts Parts.

title benoti of its petrans.

5. The Bester Edison Company maintain a narea of inference of the petral of the petr

## Boston Is Headquarters For Electric Auto Activity

Since the Boston campaign was started ten agencies and hernbes to be been opened in Boston by vehicles assurance, and the started ten agencies and hernbes to we been opened in Boston by vehicles assurance, and the started agency of the starte

### THE WORLD'S GREATEST ELECTRIC SHOW.

International in Scope and Character. Promoted by the Boston Edison Company. Opens October, 1912, and Runs 5 weeks. 9,756 square feet of choice space assigned Electric PLEASE MENTION THE COMMERCIAL WEHICLE WHEN WRITING TO ADVERTISERS.

### Co-operation With Manufacturers

The Boston Edison Company believes that it is doing more to further the sale of electric automobiles for business or please ure than is being done by the Manufacturers of Electric Automobiles thenselves dr home eltics.

n their home elities.

Before it underteek to suggest to the Public the use of Electric Automobiles the Company thought the best plan was to itelf use what it intended advocating others bould use, because a careful investigation and shown the real economy and efficiency of the Electric Automobile.

Accordingly, the company began to equip to entire. Transportation Department with Electric Automobiles in both its passenger and transportation service. Over \$80,000 worth of Electric Automobiles have already even ordered. Larger new orders are ise-per planed as first as the changes can be smade in the Transportation Department.

midd in the Transportation Department.
The following shows some of the steps taken by the Company to gain public continues the covered by the Company is finest.

J. The, Cospany lies started large and in the following Boston daily papers: Globe, Post, Marcian, Traveler, Transport, Record, Hereida, Journal and Chirthan Science and Moutter.

Monitor.

 In addition to this the Company has started active advertising campaigns in assaurizant papers, thoroughly covering its entire territory.

sanstran paper, incrousity covering its A. The Boson. Editor Company, offer-signis, munifestivers and leaker, sheets! A. The Boson. Editor Company of the signist immunifestivers and leaker, sheets! A supplementation of the significant of the total control of the significant of the sanstrange and significant of the this gargee as a compositor of manufac-turage facilities in the coursel portion of the fully where real create last less loss of the fully where real create last less loss of the fully where real create last less loss of the course of the significant of create the create the significant of create the signific

5. The extent of the Electric Sign Ad-ertising is shown on the opposite page.



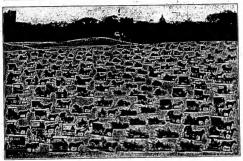
The Central Station Back of the Electric Vehicle

The most profound impression created at the last annual Convention of the Electric dhiele Association of America was produced by the paper read by Mr. E. S. Manseld, Engineer and Buperintendent in charge of the Automobile Department of the citon Edison Company. (See editoral columns.) It told in detail of the great work of education undertaken by the Boston Edison. Company.

A copy of this paper, attractively bound and illustrated, will be sent on request THE WORLD'S GREATEST ELECTRIC SHOW

Automobile Interests. 4,932 feet contracted for in the first 2 weeks. The great future demand for Electrics will come from Boston, Make your exhibit there. The management promises a world's record in attendance and exhibits.

PLEASE MENTION THE COMMERCIAL VEHICLE WHEN WRITING TO ADVERTISERS.



The Transportation Department Equipment of the Edison Electric Illuminating Company which is being completely changed over to Electric Vehicles because they save the Company money.

#### THE ELECTRIC VEHICLE CLUB OF BOSTON

#### The Electric Vehicle Situation

week's convention of the Electric Vehicle A demonstrates onew the difficulty of the tesh

In order to produce the greatest co-operation and con-sequent strength for the entire industry in Boston, it was necessary that all manufacturers, representatives and dealers meet upon a friendly plane and unitedly "boost" the Electric Automobile.

Accordingly, the Boston Edison Company suggested a closer affiliation of all interested in the Industry. The result was the Electric Vehicle Club of Boston.

This Clab meets in the Assembly Room of the Boston.

Edison Company sharp at 12.30 P. M. every Wednesday.

An invitation to attend is given all visiting manufacturers and their representatives at all times.

At these weekly conferences a wonderful amount of friendly co-operative work has been developed, with active, aggressive standing committees formed on all the

(1) Committee on Co-operative Advertising. (2) Committee on Electric Signs.

(3) Committee on Vehicles and Electric Shows.

(4) Committee on Rates, (5) Committee on Garage and Charging Stations.

(6) Committee on Publicity. (7) Committee on Arbitration. (8) Committee on Co-operation between the Club

and Boston Edison Company. (9) Committee on Public Meetings.

(10) Committee on Lists of Prospects.

Boston offers a great campaign of Publicity, Purchase and Co-operation to increase Sales and benefit customers. It offers these facilities broadly to all Purchasers and likewise to all Manufacturers of Electric Automobiles and Accessories.

# The Edison Electric Illuminating Company of Boston

33-39 BOYLSTON STREET

Jan w Court

December 7, 1911.

Mr. Edison,-

The present method of putting up ignition cells for automobile work is not practical. Repectally does this obtain when considerable amounts of current are necessary, as when blowing Klaxons.

They are now placed in trays, which, in turn, are placed in our steel boxes. Usually these boxes are placed on the running board of the machine, and therefore are subjected the cold air blown rapidly by them. As a result, Alaxons operated by Edison Battery in Winter, do not to the cold with the

It would seem much cheaper and easier for us to place these calls in a steal box separated, and the appearate these calls in a steal box separated and the appearate that the steal box seems the insulating compound we use for this purpose is an excellent retainer of heat, and therefore, after a car has been stored in a garage all night; I can be out for hours in low temperature, before the electrolyte temperature will reach the critical points.

Furthermore, the cells can be placed closer together, and the length of the box correspondingly out down. A hinged top can be attached to the steel box, thus not necessitating a separate containing box for the unit.

largely for furnishing current for lights, etc., on machines, this feature is important, and should be corrected before injury is done to the battery's reputation for this purpose.

M. R. HUTCHISON

# THE BATES ADVERTISING COMPANY

CONVERSE D. MARSH
CHAIRMAN EXECUTIVE COMMITTEE
15.SPRUCE ST. NEW YORK
ENTRANCE TO OFFICE PLOORS 52 STORY

Telephone Numbers
4420
4421 | Beekman
4432 |

December 13, 1911.

Thoe. A. Edison, Esq.,

Orange, N. J.

DO 14 911

My dear Mr. Edison:-

In the Year of our Lord 1903 there was not an Electric Light Company in this country doing any orderly or systematic advertising -- a desultory notice here and there was all that ever cropped out. I began a stirring campaign for The Boeton Edison Company, for The Commonwealth Company of Chicago, for Henry L. Doherty, Stone & Webster and J. C. White Companies.

The euccese of all this work was so tremendous that literally millions of dollars have been epent since the awakening of all the other Electric Light Companies. Dose this suggest any possibility to you of what is going to happen in the Electric Vehicle field as a result of my Boston work -- and the magnificent support of the Boston Company?

The head of a large Electrical Hamufacturing plant told me a little while ago that he considered my work had sold more Electric apparatus than any other single man's in this country (as they say in the Postum Advortisements, name on request.) The same rosults will happen on advertising and sales planning for Electric Yehicles as I ecured for other electrical apparatus.

Already there is an awakening smong the Central Stations in a few of the more enterpricing companies scattered here and there, but there will be no general awakening until the Boston experiment of expanding the Industry by injecting a third-of-a-million dollars into the situation has been proved an energous success. This will carry its own lesson to everyone of the 6,000 Central Stations in the United States whose combined capital is nearly  $2\frac{1}{5}$  billion dollars.

There is a time factor in making other people see the thinge you want thom to see, however logical your position. I have no ticed that myself with you gentlemen of the E. V. Industry. It takes time to get a new idea through the heads of the managere of Electric Light Companies just as it does anyone elss.

I took the financial head of a large banking house out to Orango to see Mr. Edison the other day. In the course of an hour's talk he told how it took 6 or 7 years for the people to first wake up to the value of electric light. But people act quicker -- live quicker -- than they used to. All the active Electric Light Companies will fall in line after Boston has proved out, whether it be 3 years from now or one year from now.

It is going to take the other Central Stations <u>considered</u>
as a <u>mass</u> 3 years to thoroughly wake up to the Boston situation
under ordinary conditions, because an ordinary man cannot see in advance the force of an undeveloped situation -- it has to be proved
out to him, it has to be demonstrated -- and then some.

Without your help I can show the Central Stations of the country an enormous demand for Electric Vehicles in the Boston Tsrritory in the next 3 years.

But with your help I can do this very same thing in 1 year.

In the 6,000 Central Stations in this country there are
to-day at least 400 splendid business organizations. You can turn
everyone of those business organizations into a boosing machine for

Electric Vehicles once the management sees the light.

All of you gentlemen in the Electric Vohicle Industry together could not create those 400 selling machines in 10 years of work. Yet they are there and their energies are being directed otherwise than in the advocacy, premotion and exploitation of Electric Vehicles.

And all this is true, gentlemen, word for word and line by line, and yet I do not seem to have been able to show you where your interests lie in gotting out of the rut of the deadly, daily thump, thump, thump to do a little something <u>unusual</u> in Boston to help yourselves.

The ragged little urchin has my sympathy who used to go before the foot lights and sing --

"Gee! but it's hard when you ain't got a friend."

Yours very truly,

CDM/EG

Beatery 8 9-5008-2-11.

# Public Service Electric Company

Broad and Bank Streete, Newark, N. J., December 14, 1911.

Am 17/18/11

THOMAS A EDISON, ESQ., Edicon Storage Battery Company, Orange, New Jersey.

Dear Sir,-

I am in receipt of your letter of pecember 18th, regarding the subject of electric vehicles and I would be very glad to call on you any time that you might designate.

If you will kindly let me know when it will be convenient you will oblige

Youre very truly,

DIVISION AGENT.

Lu geni 1

#### THE BATES ADVERTISING COMPANY

CONVERSE D. MARSH
CHARMAN EXECUTIVE COMMITTEE

15 SPRUCE ST. NEW YORK
ENTRANCE TO OFFICE PLOORS 5<sup>th</sup> STORY

Telephone Numbers
4420
4421
Beekman
4422

DEC 16 .

December 15, 1911.

My dear Mr. Raison:- (weeving the attacked & Don't worry any by thinking I am giving up

trying to make the Electric Vehicle Hanufacturers see my point.

Some of them are already spending a lot of money, but I want them
all to boost Boston sales.

We have not started to fight yet and we are going to provide one of our unregenerated friends in the Industry aroused fully before we get through. Some of them are already aroused and citra money for demonstrating vehicles and advertising and seems is being spent in Boston. But having by the lettors I have sent made merely a feint I am now going to start in and outflank them.

The next fow letters will be sent by the Superintendent of the Automobile Department in Bosten and then I will have Er. Atkins, the General Superintendent open out on them. Finally, Er. Edgar's thunder must be added to the din of battle and I will bet an Edison Battery against a lead outfit (Heaven knows that's odd enough!) that instead of waiting several years for them to see things in the chimpansee way they'll get the light in the next few months.

Please remember I have not really started, I have just been taking in a breath before the pistol cracked at the sprint line.

ment

# THE BATES ADVERTISING COMPANY

CONVERSE D. MARSH
CHAIRMAN EXECUTIVE COMMITTEE
15 SPRUCE ST. NEW YORK
ENTRANCE TO OFFICE PLOORS 5" STORY

Telephone Numbers 4420 4421 Beekman 4432

December 15, 1911.

Thos. A. Edison Esq.,

Orange, E. J.

My dear Mr. Edison: -

Something tells me I'm a failure!

I have kept iterating, re-iterating and re-re-reiterating a vital fact in the progress of your business.

But. I can't get it over to you.

You'll see it all right, after it's all done -- 3
years from now. If I possessed power to make you see it to-day
we could out that 3 years' period down to a single year.

If I could make you see it now, you couldn't fill your orders one year from this day.

Roston has started out to help you by spending 1/3 of a million dollars in a single year. Neither their doing it or my telling you about their

Neither their doing it or my telling you about their doing it has moved you a single hair's breath so far as your material aid is concerned.

That's why I am a failure!

Yet Boston's movement is going to be duplicated all over the country in 3 years.

You can get that giant movement going in a year if you would spend a fraction of what Boston is spending.

I'm no artist, but if you'll come down to my office,
I'll dip a paint brush in some vermilion red ink and try to paint

a picture of a map of the United States and then put a circle around over 100 cities that I know will stand from \$5,000 to \$35,000 each in a single year after the Boston situation has been demonstrated.

Incidentally, lot me close my record of a failure achieved by saying that it wouldn't take much load off the point of your pencil to figure what such a total in 100 cities would mean. It is a good deal more money than all of you gentlemen spend together in your National advortising.

And there's 300 more small cities with splendid businessgetting organizations that ought to be working day and night to help push the E. V. business.

Will you tell me as a personal matter before I close this unproductive correspondence just where I have failed to make the point? I see it, Boston secs it. Wherein -- how -- has my attempt fallen down to make you see it? Have I been too earnest -have I been too "sassy" -- is there any possibility of a chance that the fault is yours?

At any rate -- Goodbye -- I'm a failure as far as you are concerned and there's no satisfaction in the knowledge that you are the loser. Although Boston docsn't get a dollar of cooperative help from you she will work out her own plans in 3 years' time. If you're satisfied I have to be. Goodbye.

Yours very fruly,

сви/ка

Bunnebys on morte ton a country of the other control by the control by the country by the country by the country of the countr

guarantee".

I didn't find, attached to this memorandum, any guarantee

to find flaws in.

I did find a masterpiece for the front cover of "Puck".

It is possibly a good thing that our good friend Mark Twain

has passed away. If he had not already done so, a perusal of this king of jokes would cause him to do so, from sheer envy.

1. An unsuspecting man in Key West, Fla., hought a car equipped with Ironolads. After the car was delivered, and someons tells him about this guarantee, he discovered that the particular make of car he has is not approved."

2. When ordering an "approved" car, our Key West ffield specifies some make of tire that has given him good service in machines he has owned before. When he goes after his guarantes, he finds the tires on that machine are not "approved."

in the country, and geta a blow-out. He must be sure to buy another tire of the same make, or, failing to find such in accel dealers' garages, he must lay his car until one of these "approved" tires comes. from the factory to the factory to the factory will be given, but in the last paragraph, it states that the guarantee is not binding unless accepted by the comer, and countersigned by "an officer of the Electric Storage Battery Company, at Philadelphia, Pa. What is there to indicate that the officer of the Company will

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he sometimes had three and four carloads of grain lost for four or five months. Our Key West friend's car and battery get lost on the

way from the factory. He doesn't make his application for guarantee until the oar is received. Too late.

depots. It was shipped from the factory over fifty days before. No guarantee in order.

7. "Upon request" indicates the company is afraid of the battery, or the guarantee would go with the shipment, irrespective of the request. What fool would not Request a guarantee if he knew that one existed?

ays from the time the battory is shipped from the works. Then it will be too later frey are simply gambling on sixty days ignorance.

9. The purchaser orders two cars, one with Exide Hycap and the other with Exide Ironclad. Both identical. He wants to place the Ironclad into the car with Hycaps, but me cannot do it, because the serial number of the Hycap car is not the same as the serial number of the Ironclad car.

10. What about the connections between cells which we know corrode and fall apart; Mothing but the plates are monitioned.

11. It is common knowledge that wood separators do not last over seighteen monther. The majority of them only last twelve months: Title Table is a lead burning outfit in the whole

town of Key West. That means our Key West-friend must send to Pensaopla or Mobile for a man with a hydrogen flame outfit. He takes all the cells apart, breaks a few plates and more than a few jars, in the operation. The owner has to buy new plates at list price.

Also new jars and separators at list price. Only the plates come

ൂട്ടുമായി അനും വൃത്തു സാംഗ്യം പുത്രവർ കാരും**ംട്ട**െ സുവളിം യോഗ്യം ഉത്ത്യം പ്രീവര് ഒരു വര്യം വ അതു പ്രവേശങ്ങൾ പ്രവേശനം വര്യം വൃത്തില്ലായില്ലായില്ലായില്ലായില്ലായില്ലായില്ലായില്ലായില്ലായില്ലായില്ലായില്ലായില്

in under the "guarantee".

12. In casting hard-rubber jars, blow heles occur, which do not demonstrate their pressness until subjected to mechanical strain. Then the jars leak. Then I first produced the Acousticon for the deaf, I used a small pocket storage buttery. Three cells per battery. Much trouble from local actions. Tested the jars by filling them with shot, and placing in a box of shot, up to 1/4° of the top. Subjected shot in each compartment to a.P. D. of 10,000 velts. Theoretically, the thickness of rubber should stand 20,000 volts. The majority of them jumped through at 2,000 volts. I then tested some large battery jars, and found very few of them that would stand over 3,000 volts. Fault in each case from blow holes. What shout 40 jars of Ironolads, and who pays for the cell that is injured by solution leaking out while the cell is charged?

13. The second paragraph of the "guarantee" is superfluous. No other concern has been insane enough to try to make such

14. When you buy an automobile tire, for, say, \$50,00, it is guaranteed for 3,500 miles. If it blows out at 2,000 miles, and you the first through the maker, and provided the blow-out hus not been onused by a tone bruise, or by running the tire blown up too history now running; it blown up hard snough; or provided the tire is not suffering from stone bruise, yeu will get a new one on this basis: You are charged with 20/55ths, or 4/7 of 3,000 miles, and

parent year mean experience of any analysis of the control of the second of the second

oredited with 18 35thm; or 3/7 of 3,500 miles. Hence, by paying \$21,44, you get a new shoe.

You remve the tire from the car at 2,000 miles, before anything has happened to it, but because it is getting ragged locking. You send it back to the factory, and you get your new shoe by paying \$21.44. As a rule, the tire companies are fair in this matter.

15. You buy 33 calls of Ironclads for \$600.00. At the end of say, 10,000 wiles, if you have lain await nights and saided the book of instructions, and have neglected your business to gollow them, and they "bick out" down and out with capacity of less than one ten thousandfus of an inong per charge, you make a noise like a If you are living in New West, you must send for somebody to burn the cells spart. Then capty them out, pack them properly, and ship them to the fearest Exide depot which may be St. Louis. The agent in St. Louis can't decide, and forwards them to the factory. The factory man takes his time to consider it, and we will say, within twelve months (no time specified in guarantes) mou learn that by paying \$300.00, you can have another Ironclad. Then you pay freight from St. Louis to Key West.

16. You buy an Edde Battery, run it a few thousand miles, and then decide you do not want another one. You can't have the and time due you, credited on a straight Exide battery.

It is Tomolad or nothing.

only go three inches per charge, it is up to you to keep charging it and going those three inches for three years, or until the plates are "worn out". The words "worn out" certainly mean capacity to do no

Beckler in configuet in the generalised in province in a province of instance on a configuence of the config

18. Propos miles in three years is only 18 miles per day, but this is reasonable mileage for an electric. Average of an electric ar is 4,800 miles per year, or a little over 13 miles per day. On this basis, a pleasure vehicle which has been in commission 365 days in a year, and for three years, would only 14,235 miles within the three years on a basis of 75 miles per charge, this would only be 200 cycles. So cycles is the acknowledged life of a lend cell, so they therefore are calculating on only 47 miles per charge average. This shows they expect the battery to loss capacity.

19. All time for repairs and waiting for renewal plates from the factory, count in on the three years. It is therefore evident that the time feature is of more import to them than the mileage

20. Please note that nothing can be done in the way of renewals, at any price, until the plates are worn out. In this respect, the alleged guarantee is not at all comparable to the quarantee of tire manufacturers, that is itself full of gions-bruise and rim-cutting holes.

21. I can appear believe the Electric Storage Battery Company would sign such a guarantee as this, without a few more strings that Ac not appear. For instance, they say nothing about following instructions for the care and upkeap of the battery. They surely would not send out a guarantee unless it is specified therein that the cells must be cared for an paring tructions. At they do not make this proviso, they are laying themselves open perhaps.

22. On the other hands they may leave out the reference to instructions, so that the battery will be worn out quickly, and you among your see your seeing and property of the room over servers the re-

thereby give them an opportunity to cell renewal plates, etc. There is a "nigger" somethere, or they would not have left those instructions out.

After dictating the above, I notice the second sheet under the guarantes "Knock-out Drops". I did not see it before, but some of these points soom far-fetched. For instance, item #4: A worn-out plate is a plate uncapable of doing work, whether it is broken or otherwise imagnotizated.

#5. I am not quite sure, but have a book at the office in which I think the price of Ironclad plates is mentioned.

Storage Battery Company will "stick" the purchaser on.

#7 is superfluous, because when the Edison Storage Battery Company gives a guarantee with the provise that the instructions be carried out, if the company finds instructions have not been carried out, they make no mention whatever about a Board of Arbitration to decide the matter.

#11 does not obtain, as no reference is made in the guarantee
to who is to remove the plates from the cell.

22 speaks of returning the battery intact. The guarantee says

nothing about this.

15. There is no proof to back it up, and a lawyer would give the opinion that if the directions are not included in the guarantee, and no reference to them is made, the owner cannot be held liable or at faulty under the guarantee. I do not see that this scheme obtains because a man can, if he desires, throw the battery away after purchas-

ing. If rented, he could not do this. "Approved" tires are mentioned, because the company is hunting for miles, and knows that some make of tires takes less energy to drive the vehicles, than other makes of tires.

I wonder if this guarantee is copyrighted? I would like to publish it alongoide of our guarantee, with a few remarks.

# [ATTACHMENT/ENCLOSURE]

7	Br	т ГЕКУ . Stoene Нитото	E BILES
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	kome me		
aver	This great	nga mi	Vecas
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t Dont a	y time	Capacit	Ī
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REPORT ON DIFFICULTIES EXPERIENCE

June 17th, 1910 Machine received.

" 20th, " Found water about 1/2" below top of plates; had apparently not been filled in long time; refilled 0.k.

" 21st, " Hoad indicated in eketch broke - had been operating on a single strend of wire - replaced by a lead of longer longth which should have been there in the first-place.



114

" 22nd, " Voltmeter of instrument grounded due to instrument once not being properly insulated from metal dash; armsture burned out; replaced by Roller-Smith Co.

"" 22nd, " Found that bolt head of the olip on rear half of right front spring was outting battery orate badly; out sway orate till bolt was free. (Occurred again later on left side.)

" 23rd, " Found controller lever on top of steering wheel loose; shimmed up with red fibre.

July 1st, " Found broken rivet in link of Morse chain.

Replaced. Steering gear had become very slack and finally located trouble as shown in sketch.

That on bress degener (underside of you look from broken greater and

4th, " Whon lomps were switched on at evening the lamp in right front headlight blew out. Water

had worked into base of sooket and causod short circuit; base receptacle was therefore made water-tight with Okonite tape.

July 8th, 1910 Had to adjust all brakes as one wheel skidded while the other was loose - and motor brake raticled.

" 11th.

Found that bolt thru frame on rear right hand side hit enring and prevented full action of same. Therefore out off bolt and headed up



- " 12th, " Found that Morse chain threw grouse and dirt into compartment under sost where dusters, etc. were kept; made tin chield to prevent this.
- 13th, " Tube (spiral metal) on horn broke and horn would not cound; horn poorly placed as well as bulb and tube; ropaired tube.
- 15th, " Brakes adjusted again; had strotched. Controller contacts eanapapered, were rough and burnt.
- " 16th, " Lost motion in drag link of steering genr.
- " 17th, " No way of protecting goods kept under seat as flap is not secured in any manner. Therefore, ran rewhids extrips from each end of bottom of flap thru cyabolts to rear of mechine and tied them there.
- " 18th, " Found eido ohoins locec; adjusted, but lock nute do not seem to hold.
- " 19th. " Bolt at top of eteering column kept working loose; elightly upset same and tightoned up; now 0.K.
- " 28th, " Look collar at bottom of steering column had booked out also, set sorew does not hold. Fixed O.K.

Aug.	18th,	1910	Bolt in right-hand side of board carrying ammoter shunt broke. Replaced.
"	21st,	п	Entire battery orate had shifted over or listed to right-hand side. Shimmed up lovel at rear.
"	24th,	"	Controller fingers burned and pitted. Sand- papered O.K.
"	30th,	"	Rear lamp not big enough and did not illuminate number-plate enough. Replaced by larger lamp.
Sept.	1st,	11	All tires found badly rim-out; had to be replaced.
•	19th,	п	Right front wheel ron hot and scored babbitt. Ropaired as well as possible. (All bearings are "plain" - B.G. for auto work.)
"	soth,	п	Support used to hold rear left brake land olip in place broke off; lost. (seme thing happened twice thereafter, both sides.)
Oot.	30th,	. "	Steering again very slack; took up lost motion at all joints.
Nov.	12th,	."	Side chains again adjusted. One had tightoned, the other slackened.
<b>"</b>	13th,	, "	Front axle broke at points just inside steering heads. Broke from bottom side at speed of 8 m.p.h.

How. 27th, " Hew axle put in place; took precention to scrape paint off exle at points of provious failure in order to watch for in the flaws.

Nov. 30th, 1910)
to Mar. 18th, 1911) In Storage. Rubber buffers put in undor
rear frame as machine hits
oprings on ordinary bounce.

March 24th, 1911 Left front wheel ran hot and bound. Eabbitt badly scored. Repaired as well as possible.

" 25th, " Right front wheel ran hot again. Ropaired as before.

April 2nd, " Side chains again needed adjusting. One was

" 7th, " Losserses and lost motion in steering gear very bad. Finally loosted trouble. Arm had worm largor than spindle, and mut did not set down on arm but on epinale!) Repaired by using weakers.

April 16th, " Controller again meded sandpaporing. Mothod of control by lever on top of wheel is very conveniont but allows of lever being left in position between notobes with consequent burning of points.

27th, "Bnd lost motion apparent in steering heads."
Huts seemed to have booked or bearing to
have worn badly; had to adjust heads on both
wheels.

29th, " Whoels (all four) by this time were quite loose and ruttled. Found that look rings did not set up against wheel bearings as they should, but against end of axle spindle, and therefore, did no good.

Space represent lost motion \_\_\_\_\_\_ where their brifts in and out and in

should but uf against

against which look surg peaks bets

Oursour difficulty by

...

May 8th, 1911 Another shoe rim out and blew out.

" 13th. " Brakes again had to be adjusted

23rd, "

(his hal) (left from wheal) dropped offi
at 10 m.p.h. on 5th Ave. Pound upon investigation that balls are not an integral part of
am or keyed on haw way as they should be,
but are morely pushed on and the ond of stud
leaded up thus

The contraction of the contraction



27th, " Steering heads again loose. (See Apr. 27th). Tightened.

31st, " Cracks developing in front axle at same identical points that previous breaks coourred.
Unsafe to run machine.

June 2nd, " Right front whool ran hot and bearing bound while numing very slowly - useless to repair further

Total distance run 4000 miles.

#### GENERAL.

BRAKES:

Are of inferior and defective design, ehould be of the Raymond type. They required conetent attention and adjustment and did not have any holding power.

STEERING:

Very poor design throughout and poorly put together and some of the points were roelly oriminal in their construction. (see detailed roport). Could not be kept in good order. Turning radius much loo small for city work.

AXLES:

Roar axle eeems O.Z. But front axle of bronze is apparently wrongly designed, failing twice in the same spots at both sides.

CHAINS:

Moroe chain O.K., but eido chains could not be kept in adjustment for more than 100 miles; method of looking dietenes rode poor.

BATTERY:

The mathod of maspending bettory in a three point ornale in a good. The modinion rooke and comnot be controlled at speede of over 25 m.p.h., while it will sited on dry coblide at over 10 m.p.h. It is the controlled at speede of over 25 m.p.h. It is the controlled at the controlled

MOTOR:

G.E.motor gave entire eatlefaction and needed no attention whatever during entire service.

BODY:

The body is of pleasing lines but of no use whatever for general use; it is vory dusty, windy, cold end generally expess; dach is too low, etc., etc. When made ready for wet weather, it is impossible to see such that and is, therefore, dangerous or aron blow use also lound that the desired or aron blow use also found that the desired or aron blow use also found that the desired or aron on und all around the oar, admitting rain and mud and rawhide etraps had to be devised to hold down the apron before the oar could be used in comfort for everyday rainy work. The leather covered nuts holding the bowe to the frame of the top continually worked loose Many parte of the car rattled, and rattled. altho tape and copper wire, rubber, etc. were freely used to dampon the noise. T floor covering was of worn material and soon wore thru. Also the storage room under the sent could not be well used as everything had to be dragged out as the entire floor had to be taken up to water the battery. Loather should also have been used for upholetering instead of the duet-collecting, easily torn and soiled oloth used. The controllor was not sufficiently well protected and get wet in rainy weather and corroded.

The entire mechine (seide from battery and motor) is practically worn out, all bearings being losso; and everything rattles. The machine is not a commercial proposition.

It would seem most derivable to have Edison latteries supplied with the Hupp-Raste also the Batteries with the Hupp-Raste also the Batteries with the Batteries will be seen incly the best built and is the best locking on the market the Torpedo ctyle being ideal for all around use. The method of Artvo is original and efficient, the would be seen the Batteries will be supplied by the State of the Batteries will be supplied by the State of the State of the Batteries will be supplied by the State of the State o

#### Edison General File Series 1911, Battery, Storage - Electric Vehicles - Anderson Electric Car Company (E-11-17)

This folder contains correspondence and other documents relating to commercial and technical development of Edison's alkaline storage battery and its use in electric vehicles. Most of the letters are by William C. Anderson, president of the Anderson Electric Car Co. and manufacturer of the Detroit Electric automobile. Some of the items concern Edison's competitors, including the Electric Storage Battery Co. of Philadelphia, manufacturer of the Inonclad-Exide battery. Also included are remarks by Edison regarding the performance, capacity, and efficiency of batteries, rectifiers, and vehicles. A newspaper clipping enclosed in one of Anderson's letters discusses the divorce of Frank J. Kellogg, a childhood friend of Edison.

All of the documents have been selected except for duplicates.

auto-anderson

ANDERSON ELECTRIC CAR CO.







Petroit, Mich. Jany. 13, 1911

Mr. Thomas A. Edison, Orange, New Jersey.

JAN 16 1911

My dear Mr. Edison;

Yours of the 10th introducing Mr. Walter Mallory has been received and can assure you it will be my pleasure to go the limit with him.

I take it you wish me to take it up with him by correspondence and I am therefore writing him to-day to know if he cannot meet me in New York some day next week.

It was my intention to go to leave until Sunday are even that a decided not to leave until Sunday are even to have decided not to leave until Sunday are even be in Hew York For not know that I will have time to go over and see you but will if possible.

Hoping this will find you well, with many thanks for your kind letter, I remain,

Yours very truly,

WCA/E

Munusor

auto-

ANDERSON ELECTRIC CAR CO.



Detroit, Mich. January 23, 1911

Mr. Thos. A. Edison, President. Edison Storage Battery Co., Orange, N. J.

My dear Mr. Edison :-

e that the non &

you might be interested I thoug in seeing some figures. I admit they are large and I

in seeing some figures. I admit they are large and I think many of them are overdrawn, however, in this might unclease they are correct.

The dustion arises in my mind as to how long can this gas continue to blow off. "Not very long" would be my reply if we had that new battery put up against them. Are you keeping that in mind? Also what are the propepters for our getting one-main dozen of the new rectifiers?

Mr. Marr sends me the enclosed clipping and letter, which I hand you. Is there to a concolidation? If so, we may look forward to the fact that we might be able to receive the degree which would entitle us to be listed as Exide uners. Please Is there to be note the enclosed.

Yours very truly,

WCA-EP

List of Figures Clipping & Letter. Manuspe

# [ATTACHMENT/ENCLOSURE]

# DETROIT SATURDAY NIGHT

This Statement Gives an Authentic Estimate of Detroit's Automobile Industry for 1911

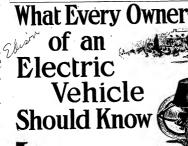
	All IV Denote S Transmit				
/	Compiled	by Jacob Nathan.			
_	Pleasure Care	Capitalization	No. of Cars to be Produced in 1911	Value of 1911 Output	
		s 350,000	2,500	\$ 4,000,000	
	Abbott Motor Co	1,350,000	9,500	5,000,000	
	Brush Runabout Co	1,500,000	11,250	11,375,000	
	Cadillae Motor Car Co	500,000	300	750,000	
	Carhartt Auto Corporation		5,000	9,000,000	
	Chalmers Motor Car Co	3,000,000	36,000	28.800,000	
	E-M-F Co	1,000,000		22,000,000	
	Ford Motor Co	2,000,000	30,000	1,200,000	
	Herreshoff Motor Co	230,000	1,200		
	Hudson Motor Car Co	1,000,000	5,000	6,500,000	
	Hupp Motor Car Co	500,000	7,500	5,000,000	
	#Krit Motor Car Co				
	TRUIT MOTOR CAR CO	10.000,000		******	
	Packard Motor Car Co	1,000,000	8,000	9,600,000	
	Regal Motor Car Co	500,000	600	1,800,000	
	Welch Co. of Detroit	300,000	1.500	1,950,000	
	Warren Motor Co	150,000	1,500	1,725,000	
	Sibley Motor Car Co		3,000	2,700,000	
	Paige-Detroit Motor Car Co	250,000	1,400	3,500,000	
	*Anderson Electric Carriage Co	1,000,000	4,000	2.225,000	
	Metzger Motor Car Co	1,000,000		.,,	
	&Lozier Motor Co	2,000,000	****	875,000	
	*Hupp-Yeats Electric Car Co	100,000	500		
	*Phipps-Grinnell Auto Co	Partnership	200 -	525,000	
	Commercial Valides			407.000	
	Carhartt Auto Corporation		50	125,000	
	Grabowsky Power Wagon Co	500,000	1,200	2,760,000	
	Herreshoff Motor Co	******	300	300,000	
	Herresnon Motor Co	2,500,000	2,500	4,250,000	
	Alden-Sampson Co	1,000,000	3,500	2,975,000	
	Van Dyke Motor Car Co		500	650,000	
	Warren Motor Co	500,000	400	1,000,000	
	Sietz Motor Co		1.000	2,400,000	
	*Anderson Electric Carriage Co	******	400	785,000	
	Oliver Motor Car Co	300,000	1,000	3,000,000	
	Universal Truck Co	350,000	500	625,000	
	Beyster-Detroit Motor Car Co	250,000	1,250	2,750,000	
	Metzger Motor Car Co			132,000	
	*Phipps-Grinnell Auto Co		50	1,100,000	
	Federal Motor Truck Co	100,000	500	750,000	•
	Superior Motor Car Co	150,000	500	750,000	
		PITULATION.			
			\$ 33,380,	000	
	Total capitalization of 31 companies		4 33,300,	128,95	0
	Total number of pleasure cars		\$118,525.		
	Total value of pleasure cars		\$110,523,	13.65	in
	Total number of commercial vehicles		0.00.000		
	Total value of commercial vehicles		\$ 23,602	142,60	n
	Total number of all ears for 1911				
	Total value of entire output		\$142,127,	000	
	Total value of entire output			and.	
	t Kriz figures not available as company is going und	ler new management na	of himm are not compa		

i Productil not prepared to amountee stelland agreement and the production of Paintsburg, N. Y.
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Electric vehicles aspecialed, 250 will be compilete transis and 1,000 one-tion trust change.

Electric vehicles aspecialed, 250 will be compilete transis.





tric car makers Imow how to do their work right.

THE BATTERY is the great essential—the selection of which cannot be too carefully made.

There are a number of different batteries made, yet more than 90% of all electric vehicles manufactured are equipped with the "\$\frac{1}{2}\text{XID}e"\text{Battery}. These famous makers use the famous "\$\frac{1}{2}\text{XID}e"\text{2}\text{Eulery}. These famous makers use the famous "\$\frac{1}{2}\text{XID}e"\text{2}\text{Eulery}.

Baker Motor Vehicle Co. Batten-Dayton Motor Co. Broc Electric Vehicle Co. Columbus Buggy Co. Champion Wagon Co.

Hupp-Yeatts Electric Car-Ideal Electric Co. C. P. Kimball & Co. Ohio Electric Car Co. The Dayton Electromobile Co. The Waverley Co. Woods Motor Vehicle Co.

#### "Tronclad=Exide" Battery

—a batter with has two to three times the life; that seldon if ever requires cleaning; that gives increased milesge that can be called wheever is not standard "SEADe" size are used. The "TOOTIGHO-SEADe" is immensely that the care with the c

Write the nearest Sales Office today for the book on this new

# THE ELECTRIC STORAGE BATTERY CO.

New York Boston Chicago St. Louis Cleveland Atlanta Deare
Detroit San Francisco Teronto Fortland, Orc. Sentite Los Angeles
Free "Eribp" Inspection Corps

#### [ATTACHMENT/ENCLOSURE]



# COMMERCIAL AND PLEASURE VEHICLES

ONTARIO AND C STREETS

PHILADELPHIA, PA. January 21sr, 1911.

Anderson Ricctric Car Company, Mr. W. C. Anderson, President. Detroit, Michigan.

Dear Sir :-

I enclose a cutting from the Evening Telegraph, which may mean much or little. Last week the same statement was made by the "Telegraph" but I believe was denied by both parties. It is true the stock has gone up from below 50 to 54-1/2 within a short time.

> Very truly yours, PHILADELPHIA STORAGE BATTERY COMPANY.

[ENCLOSURE]



Thomas A. Edison, Esq., Orange, N. J.

My dear Mr. Edison; How are you this beautiful weather? Hope you

are feeling as good as I am.

We have commenced to pull off some exception- Work that the lawset " ally good stunts. We made a run with one of our big-Brougham oars, the largest Brougham car in the country,which may interest you and enclose you report on same. We are going out pretty soon to make a killing but we are going to get things in shape and know we are right before we do it. We intended doing this last Fall but the cold weather came on too soon.

I am enclosing you a battery catalogue which possibly you know all about. If not, would like you to adviss me just what there is to it.

Yours truly.

WCA-E

Enc( Letter-Booklet)

ANDERSON ELECTRIC CAR CO.

Detroit

# AND STATE OF C

DETROIT, MICHIGAN.

CARS CHANGE

anderson

Anderson you we ust know that

Mr. Thomas A. Raison.

Orange, N. J.

Wy dear Mr. Bajoont of the propers of clare every

When the Beginst the last expense we than people

When I class any way that was put enough

When I class any way that was put enough

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"Won't you deny press despatch report claiming you have perfected new battery, lighter weight, half bulk, and can be charged in four or rive minutes. Such report will stop sale of present battery,

I advise your civing this public denish."
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The product are unxion finat slomething different

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Azarikas Eraman isa fin

to be perfected immediately holds up the sale. This report will cost the sale of a good many batteries.

I only cite to you the fact, that you leaked out once or twice the fact, that you were going to have a smaller tube battery, or one with a larger capacity and this went from our to ear and while it has not been published, it did us a world of harm.

Such a despatch as this is going to completely upset the public. I have always understood and believed that not more than one interview out of five that are laid to you is true,- always exaggerated and micrepresented.

I shall await with much interest to know what you have done in this matter and assure you a strong denial is what the public must have, or we will be up against it as well as you.

will this have your serious consideration and immediate action? Call in Mr. Dyer at once and send out a press despatch that will be helpful to the present battery and place us right before the public.

Yours truly,

WCA-E Enc(Clipping)

#### [ATTACHMENT/ENCLOSURE]

# STORAGE BATTEKI WORKS-WONDERS

Wizard Edison Invents One Attachable to Any Kind of Vehicle at Small Cost.

The special with ways of the control of the control

Detroit

## ANDERSON ELECTRIC GR (C.

DETROIT, MICHIGAN.

ms//p

Yacturer Jack July 1911

Yacturer have all in defferent

Thomas Ballow All on Outlest

Orange, N. Demergers

My dear Mr. Edison; offers to feet out

g cannot for so feet out

and carefully read the same but fear I have overlooked acknowledging it, wherein you make my effort
to straightin out in literatus you had in New York
which has certainly done us a lost of harm and you as
well. It takes people a long time to forget
anything like that.

Not late than vesterday I was talking car to a gentlemen and I suggested the Edison battery and he said, "Ho, I shall not buy a car until this new battery comes out." Fortunately I had in my possession your letter and explained the whole thing and finally I got him squared away so he will take my word on the proposition.

This brings up the proposition mentioned in your letter regarding rectifiers. The day has long since passed when you promised to do something for us in the rectifier line. When I was down there

---2---

last, you said you surely expected to be in a position to make delivery in five or six weeks.

Yours very truly,

WCA-E

ATTRETSO'I ELECTRIC I

ÍSSHFS CHALLENGE TO AUTO OWNERS

A CHAMPION ELECTRICIAN



ETROIT ELECTRIC EQUIPPED

Will Back Edison Battery to Outlast Any Other on Electric in Contest.

13. day auto



Thos. a. Edison Orange 7. Clutus Batter, Mich.



### Inderson Flectric Gr (6.

PLEASURE AND COMMERCIAL CARS

DETROIT, MICHIGAN.

and you found good speed.

I desire to know it was tried that a compariment after your bettery was, and, introduced the compariment of the your bettery was, and in the search of the compariment of the co and the issuity uses to in one down cown castrict all each catch home with, say, about half a charge. By the time he reaches his home, more than half out, he is required to climb a steep grade to reach his house, say 6 to 10% for one quarter of one-half mile, he would be stalled or his speed too slow.

This happens entirely too often and it is quite a natural thing too, as many people live in suburban districts and naturally use the car through the day in the down town district. Therefore, when they reach home and get stalled you can realize what happens.

So far as our motor is concerned, the one in your car is a 72 volt, which is the one you saw the blue print of and advised us to use. Towson, Bacon and myself were present at that time and if your letter is now correct to the effect we should have a 60 volt, it was certainly not stated by you at that time.

When we decided upon our 1912 car, it was on the basis of 60 A-4 cells and we have hundreds of there now under construction. Therefore, it will be impossible for us to make any change now. Let me hear from you further on this. ---2---

I am in receipt of a letter from Mr.Bee to the effect, you spent a day in New York and sold a lot of batteries to the breweries.

me this morning by our New York truck saleman to the effect, the Adams Express Company are but truck saleman to the effect, the Adams Express Company are been on the purchase of about 75 clocking over the purchase of about 75 clocking over the truck of a truck of a truck of the truck of the

I have been sending Hr. Bee letters, newspaper cippings and quotations on this American Express Co. order and it is a hard blow on your battery as the Ironclad people country lishing it and structure in the control of the country to the critical structure of the country to the critical people country to the critical people of the country country country to the critical people of the country coun

but you can see what effect this he all Tommy rot I sessue but you can see what effect this has on the selling end of constant of the seed of the seed of the seed of the constant of the seed of the seed of the seed of the from getting into Baker's hands or some of these other people, it is surely up to you to do so.

Yours very truly,

"CA/E

MIDERROY ELECTRIC CO.

to allow a four open backery rearly Exp for drapas valetage the transmiller Theres, It a 60 valt malor wb A when " allex thesel ec = dhap of Trucki at of Lately often Regarding demander Expressor

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Knows he has locar misinformed

Regards Adams Exp I donot

think they will buy lefut

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Electricia

auto - anderson



# ANDERSON LECTRIC OR (C. PLEASURE AND COMMERCIAL CARS

December 8,1911

DEG 11 Sect

Mr. Thomas A. Edison, Orange, N.J.

My dear Mr. Edison;

Thinking you might be interested in the

enclosed clipping, I herewith hand it to you. You will hear from un within a very few

days relative to the 72 and 60 volt motors.

I note you are making some further tests and if you have anything new on the proposition, would be glad to hear from you.

Yours very truly,

WCA/E

Enc(Clipping)

AMPHION E' ECTRIC

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## PLEASURE AND COMMERCIAL CARS

DETROIT, MICHIGAI

Mous

Dec. 12, 1911.

Mr. Thos. A. Edison, Edison Storage Battery Co., Orange, N.J.

DEC 14 411

My dear Mr. Edison:-Today at the Detroit Club I came in contact with Mr. Jas. S. Stevenson, whose card I attach herewith fir, was, b. stevenson, whose dust a moved new with. You will note that he is general many Berry Brothers, a probably one of the best posted men in the United States. If any man knows how to make Var-niahes, Japano, Enamels, etc., and has had a love of experience in the various kinds of many. his Company, and he himself, surely ought to stand at the head of the list. They are by far the largest people in the Country.

He is extremely anxious to take up with you in person the question relative to the covering of these cans. He tells me he fests positive that he can supply you with a mixture that will prevent the cans from rusting and peeling. It is worth the effort, and all it will cost you is the interview. You will find that he will want to go you is one interview. To wait that the is up into it very thoroughly and learn just what he is up against, and I trust that you will call in your laboratory and experienced men and go over it thoroughly. As I and experienced men and go over it thoroughly. As I stated in my letter a few days ago, it would be money well spent to give someone \$100,000.00 if they could give you appreventative against abuse on the cams. They are bound a preventative against abuse on the cams. a preventative against agues on the came. They are bound to be overfilled, they are bound to rust and they are bound to have abuse, and if something can be done, in. Mison, that will stop this trouble, it will go a long ways towards simplifying the care of these batteries.

You may, therefore, expect him to drop in on you within the next week or ten days, and I hope that you will be on the job and that something will be worked out that will be of muterial benefit.

Yours very truly, ANDERSON ELECTRIC CAR C ... WBanders on WCA-EP Card.

#### [PHOTOCOPY]

Detroit

ANDERSON ELECTRIC (AR (6.
PLEASURE AND COMMERCIAL CARS

DETROIT, MICHIGAN

Mails

Mr. Thomas A. Edison, Orange, H.J. Dear Mr. Edison;

Referring to the appointment with Mr.

Therefore have your matters arranged

we have arranged it as follows: I will leave here Sunday the 7th or Monday the 8th, arriving in New York in ample time it macro for Ford on the morning of the 9th and we will ample in Grange at 10 or 11 o'clock.

accordingly, so that you can have several hours interview with Mr. Ford on the ignition battery proposition, as well as another matter he wants to take up with you.

If, for any reason this appointment cannot be kept, you must wire me whead. I am very anxious to know what will come out of this and here is noping it will be something that will be of benefit to all concerned.

Yours truly,

WCA/E

ANDERSON ELECTRIC CAR CO.,

batury Genl

- C O P Y-

THE ANDERSON CARRIAGE CO.

NIGHT LETTER

Winnipeg, Man. Dec. 29, 1911. 11/30

R. G. Larimer, Care Detroit Electric, Detroit.

Thirty-two:below yesterday, to-day trucks working 11 hours continously each day, temperature of batteries at eight P.M. each evening 60 degrees. Success of Edison Battery new assured for all degrees of weather. Hurry back.

J. A. MoArthur

3.12 A.M.

#### Edison General File Series 1911. Battery Storage - Electric Vehicles - Promotional (E-11-18)

This folder contains two drafts, prepared by Edison's assistant, William H. Meadowcroft, of a promotional booklet entitled "The Family Electric." The booklet includes an essay, cuts from advertisements, and testimonial letters. Each version contains corrections by Edison. Only the second draft, which incorporates his earlier copyediting and is more complete, has been selected. The cover of the booklet bears a note written by Meadowcroft on October 26, 1921.

Approximately 20 percent of the documents have been selected. In addition to the earlier draft, the items not selected include additional testimonial letters, newspaper clippings, and draft notes written by Meadowcroft.

Related material can be found in E-11-15 (Battery Storage - Edison Storage Battery Company).

# THE FAMILY ELECTRIC

## The Electric as a Family Vehicle.

The average man who sets out to buy a horse and carriage is usually obliged to take something on trust, - and that is the horse. Almost any person has sufficient intelligence to pass judgment on a staple mechanical article like a carriage, but unless he is a good judge of horseflesh there is no help for it but to take the word of the dealer as to the horse.

Just so is it with the average non-technical person who contemplates the purchase of an electric vehicle. He feels competent to judge in a fair measure as to the car itself, but when it comes to passing upon the battery, which may be considered as the horse of the electric vehicle, he feels a sense of incompetency and simply takes the word of the dealer.

Thus in the two transactions we find a striking parallel up to a certain point, but diverging from thence.

In the first case the dealer may not, and often does not, know anything about the horse other than his record from hearnay, and the real facts may be beyond finding out. In the other case, the dealer, if he does not already know, can find out beyond peradventure what a given type of battery can or cannot do, as it is a mechanical and obscioul production, and its possibilities are thoroughly known by its maker.

Hence, the purchaser of an electric vehicle has a distinct advantage over the purchaser of a horse and carriage, because, if he is sufficiently persistent and insistent, he

oan find out for an absolute certainty the past and present performance of his "electric horse", that is to say, the class of battery which is to move his vehicle. /

We have therefore prepared this booklet in order that we may place in the hands of persons contemplating the purchase of an electric vehicle a few facts upon which to bese their judgment as to the true merits of different types of storage batteries, which form the basic element for the operation of this class of vehicles.

The main consideration with which the prospective purchaser is concerned are: Mileage, reliability, simplicity and economy. These points will be all considered in the following pages, and will be treated from the view point of the plain every day person who may be without technical or electrical knowledge and is 'desirous of understanding the real facts. Once upon a time, as the story books say; there was only the one kind of storage battery available for operating an electric automobile. This kind was known as the lead-acid battery, and although it was heavy, olumny, corresive, troublesome to manage as a spoiled child, and, above all, shortlived, it was the only obtainable method of using electricity in portable form for operating a vehicle. Despite such serious drawbooks, those who appreciated the convenience of the electric are struckled along, hoping for better days.

And now the better days have come with the introduction of an entirely new and different type of alkaline storage bettery invented by Mr. Edison after many years of thought, labor and experiment. So different is this bettery in results that on a single charge an electric vehicle can be driven more than twice the mileage with Edicon cells of the same weight.

From the time when Mr. Edison completed this new type of alkaline storage battery he has been convinced that one of most useful and appreciated applications would be in electric automobiles for family cervice. With this idea in mind, he made thousands of abnormally severe tests and experiments which gave him absolute assurance of that degree of dependability and reliability in his battery that were indispensable factors in planning for the "Family Electric", of which both utility and pleasure are demanded and expected.

For years without number the family horse and carriage were regarded as synonymous with steadiness and usefulness. For running errands about town, for shopping and calling, and even for an cocasional pleasure jaunt, the horse and carriage have been of great utility in their day and generation.

With the savent of the automobile, however, there dawned an era of vastly greater possibilities in the matter of daily travel. The first preference of the householder was naturally in favor of an electric car for family use. Its noiselessness, cleanliness and escinces of operation contribute to make it an ideal vehicle.

Besides, the absence of complicated machinery removed many of the terrors which mechanism has for the female mind, and made the electric vehicle one which could be easily and confidently operated by a woman.

The only practical and available source of electric current for such vehicles is the storage battery, and as stated above, the only class of storage battery that was obtainable for -some years was the kind known as the lead cell, which is made up of lead plates immersed in strong sulphuric soid.

Lead storage batteries are of great weight for their current ospacity, and require heavily constructed vehicles to carry them. Hence, their possible radius of travel, at the very best, is comparatively small to begin with. These lead batteries have a number of serious inherent dissbillties. The most distinctive one is that they begin to deteriorate soon after they are put in use.

The principal cause of such deterioration is inevitable in a lead-acid battery. Its operation depends solely upon chemical reactions effected in particles of finely divided lead oxides (called "active material") which form part of the plates. These reactions, occurring during charge and discharge, disturb the particles physically, thus causing their gradual detachment from the plates. They fall and accumulate at the bottom of the cell, and in that condition are worse than useless. This falling off of active material is increased by jarring or jolting received by the cell, as in an automobile, also by improper charging and from other causes. Inasmuch as the capacity of the cell is proptionate to the amount of active material responding to chemical reactions, it is quite obvious that by reason of the inevitable and continual falling off of active material there is an always increasing loss, and, therefore, the capacity of lead storage batteries to deliver current diminishes constantly and continuously; the resultant effect being that the radius of travel of the vehicle grows less and less. Usually, in practice, lead batteries deteriorate so greatly in one year's use that new plates, or perhaps an entirely new battery, may be necessary, and where poorly cared for, in a lesser time.

In view of the development of such a vital disability in the early history of electric automobiles added to many other serious troubles inherent to the lead cell, it is not surprising that after a few years of experience with vehicles operated by the lead bettery there was a serious decline in the cale of such care for family use.

But with the comparatively recent introduction of the Edison Storage Battery, in which these troubles do not appear at all, there has been a great revival in the manufacture and sale of electric vehicles. By reason of the additional fact that the Edison Battery weighs only about one-half as much as the lead battery for the same power, manufacturere are now able to deeign new types of cars of much lighter weight and with far more graceful lines than were formerly possible.

Thus, the immediate result of the coming of the Edison Storage Battery has been the creation of many types of handome, light and easy running "Family Electrics", having a mileage capacity of 100 miles or more on a single charge of the battery.

Mr. Edison's thoroughness of method is well known. He was thoroughly convereant with the possibilities of his storage battery, but he also knew that the previous experience of the public with the lead battery had created a feeling of distruct with regard to storage batteries in general. For the purpose of dissipating any distruct as to his battery, he first made an abnormally severe test of its mechanical strength and of its ability to retain its active material in place. For this purpose he constructed a special apparatus operated by a motor. By means of this device a cell of his battery was tested, being raised half an inch and then dropped with a sudden jolt. The battery was jerred in this manner

more than a million and three quarter times, at the rate of about 70 jolts per minute. The tremendous strain thus imposed was many times greater than would ever be met with in practice, but the electrical capacity of the cell was not in any way impaired, thus showing that there had been no loss of active material.

It may be mentioned incidentally that by reason of the rugged strength of its construction, in which steel, iron and nickel are employed, the mechanical integrity of the cell was also unimpaired by this very severe test.

In the next place Mr. Edison proceeded to demonstrate by actual practice that his battery was capable of making long mileage runs under ordinary conditions, and without picking out especially level roads. He therefore planned a series of test outing and city runs to be made by electric automobiles operated by his storage battery.

These runs were to be made under normal conditions to "
over not only extended city runs but also tours into all parts of the
surrounding country, whether hilly or otherwise, in order to demonstrate by actual experience just what <u>on</u> be done with the "Family
Electric" under the ordinary requirements of family life. In other
words, he simed to show that, when operated by the Edison Storage
Eattery, this class of vehicle can be used for shopping, calling etc.,
and can also be used afterwards for an outing of no small extent
without the necessity of first recharging the battery.

He was also well aware . that, by reason of the fact that the Edison Storage Battery increases in capacity after it is put into use, the results shown by these tests can not only be duplicated but that they will naturally be bettered in actual practice.

These test runs are shown as advertisements in the following pages, as illustrative of that has actually been done and what may be done again by the owner of an electric vehicle operated by the Edison Storage Battery.

# The New Edison Storage Battery

# Tests of the "family electric" vehicle "Day Outing" Trip No. 1

M. B. EDBON is combacting a scein of tests of different modes of the "feating sceint" type of the ferror moder reddeless equipped with his major reddeless equipped with his major reddeless equipped with his major deletion and with reddeless of the sceint sceint

excess mileage it still retains—giving the increased hand certainty of a full round trip with a safe mang of excess mileage to spare.

There will be twolve of these "day outing" iriconducted by Mr. Edison. They will be run at week there will from relain permanently equipped for clear

#### Results of "Day Outing" Trip No. 1 with Detroit Electric

Carrying two persons; total weight 2,460 possels.

Start 40th Street and Lexington Avenue, New York, 7:28 A.M. Returned to starting point 5:02 P.M. Actual ranging time, 6 bours 58

Distance traveled in covering this route, 84 miles.

Car, ron to a standstill after completion of trip, showed 18 miles surplus. Total milesge for the day, 102 miles on a single charge of the battery. Roads generally gooil—many heavy Up to the present, but two of the several univers of certie vehicles have equipped their cars to me the ex Edhem Storage luttery. These are the Archerome arriage Company of Detroit, making the Detroit Elecbe, and S. M. Balley. & Company of Americary, Mass.

safe can will be made later.

Bashot fire traitles before used in there tests (the Decot and the Indies) were run 1,000 miles our rateriarson and secondar gardes before the cent were beganted by the contract of the cent were beganing the contract of the contract of the cent were beganing the contract of the contract of the cent were began the contract of the contract of the cent of the cent the contract of the contract of the cent of the cent that the contract of the cent of the cent of the cent that the cent of the cent of the cent of the cent that the cent of the cent of the cent of the cent that the cent of th



Edison Storage Battery Co., 121 Lakeside Ave., Orange, N. J.

#### Results of Edison "Day Outing" Trip No. 2 with Bailey Electric

Total weight of car, carrying two persons, 2,345 pounds.

sons, 2,355 pounds.

Start 40th Street and Lexington
Avenue, New York, 7:40 A.M.

Returned to starting point 8:46 P.M.

Actual running time, 5 hours 6

Distance traveled in covering this route, 76 miles.

Car, run to a standstill after completion of trip to show margin of excess mileage still in the battery, gave 40 miles surplus.

Total mileage for the day, on a single charge of the battery, 116 miles. Country mountainous and beautiful, many heavy grades, some 10%, but



## Edison "Day Outing" No. 3



Results accomplished on Edison "Day Outing" Trip No. 3

with Detroit Electric
Total weight of car with two persons, 2,448

pounds.
Start, 40th St. and Lexington Ave., New
York, 7.23 A. M.
Returned to starting point, 4.56 P. M.
Actual running time, minus time consumed waiting for ferries and stop for
dinner, 6 hours 31 minutes.
Distance covered in accomplishing this

Distance covered in accomplishing this route, 83½ miles. Car, run to a complete discharge of battery after finish of route. gave a mar-

gin of 39 miles excess.

Total milesge for the day on a sing charge of the battery, 1224 miles.

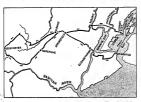
## Results accomplished on Edison "Day Outing" Trip No. 4, with Balley Electric





# Results accomplished on Edison "Day Outing" Trip No. 5

with Detroit Electric



Results of Ediso "Day Outing" Trip No. 6

ith Bailey Electr

Edison Test No. 7

## Hill Climbing Test

## 21 times up Fort George Hill

Fort George, Hill is 2138 feet in length and 11% grade. This means the New Edison Battery lifted 2387 pounds of car and load, almost one mile vertically in 8 miles

# on one charge City Test

on one 7½ hour charge
with Detroit Electric and Edwar Batters

Ran 11 to 2 hours every day for seven days. Cost of charge \$1.42, or 21 cents per day. Average speed 12.32 miles per hour-120 miles total. Total weight of car and the two passengers 2470 pounds. en all property of the groups

#### Results accomplished on Edison "Day Outing" Trip No. 8, with Detroit Electric

Total weight of ear with two persons, 2,488 pounds.
Start 40th St. and Lextogton Ave., New York, 7:83 A. M.
Returned to starting point 3:30 P. M.
Actual running tilase, minus time consumed in stop for
dinner, 6 hours, 24 minutes.
Distance overed in accomplishing this route, 84 miles.

Distance covered in accomplishing this route, 85 mass. Cur, run to a complete discharge of battery after finish of route, gave a margin of 37 miles excess.

Total mileage for day on a single charge of battery, 121 miles. Some pretty country reads on the average good.



Edison Test No. 9

# **Six-day Tour**

with Detroit Electric

478 miles—average 68 miles per day



This run, from New York via Asbury Park and Atlantic City to Philadelphia, and return via Bethlehem, Port Jervis and Newburgh, shows the consistent dependability of the electric pleasure vehicle with the proper battery equipment over a period of continuous hard road service.

of continuous mart roat selvice.

On this try, through hilly and even mountainous country, some of the best and worst roats in Pennsy herein and lower low York State war energy speed of 1s miles an hour war never evenge speed of 1s miles an hour war martinained, and the run from Atlantic City to Philadelphia, 92.62 miles, was now. This average speed for the channel of the pennsy that the pennsy

## Edison "Day Outing"—Test Trip No. 10

RESULTS OF EDISON "DAY OUTING"
TRIP No. 10

Total weight of ear, earrying two persons, 2,338 lbs. Start, 40th St. and Lexington Ave., New York, 7,12 a. m. Return to starting point, 2,54 p. m. Return to starting point, 2,55 p. m.

7.12 a. m.
Return to sturting point, 2.51 p. m.
Distance traveied in covering this route, 85 miles.
Car, run to standstill after completion of trip to
show margin of excess mileage still in the battery, gave 41 miles samplest.
Total mileage for the day, on a single charge of the
battery, 186§ miles.



## Edison Test Trip No. 11



1000-mile "Ideal Tour" and 7 miles of the 8-mile climb up Mt. Washington accomplished by "Detroit" and "Bailey" Electrics; proving by this remarkable performance that the electric vehicle with **Edison Battery** equipment will cover any route that a gasoline car can cover.

Control metament make of cheestee whiteless the regular temperature regular temperature with the Edward Sternege University of the University of the Sternege University of the Sterneg

 $g_{2}^{1}$  H. P. motor and its storage hattery, should even attempt a climb that taxes high-powered gasoline curs to the limit, is unleared of. Yet 7 miles of the 8-mile climb were accomplibed, the last mile being made impossible by blinding

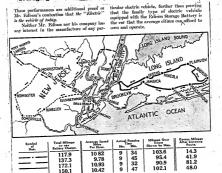
min and terrife winds.

This remarkable performance proves that the electric vehicle is no longer a luxurious type for eity use, but, equipped with the fallow Storage Battery, is the practical earl of the present and the future—the cut that any one can operate and that almost everyone can afford to own

## Edison Test No. 12.

## four runs by the Baker Electric

averaging 144.35 miles on a single battery charge,



Since the making of the foregoing series of last, immbered for I to 12, many other milege news have been made by the Balley "B. "Better! Butter " "Better! " and Manuscry" total property by Elector Storage Balley. These best made and Manuscry to the manufactures of the velicles, and the manufactures of the velicles, and the second dear were greater mileges them appears in the presentation of the milester was the presentation of the milester was the presentation of the milester was the property of the talkey.

That do These Your Hund Mean to a Purchaser?
The modern desire to encompass in a given time a greater
radius of travel than the physical limitations of the horse will
allow in responsible for the rapid development of the automobile.

Consequently, the automobile is largely employed as a family conveyance, and its adoption as such is being greatly extended from day to day. At the present time there is undoubtedly a greater number of gasoline vehicles than electrics in use because of the previous deficiencies of the latter, owing to the use of lead batteries.

There is no doubt whatever that in nine cases out of ten a family would much prefer the noiseless, cleanly, odorless, simple and more easily operated electric vehicle if reasonable mileage and reliability can be assured. There is positive proof of this fact in the tremendously increased sale of electric automobiles since the Edison storage battery has been introduced on the market.

The questions naturally erising in the mind of a person who is contemplating the purchase of an electric vehicle for femily use, are: How much use can I get out of it? Can I use it for shopping and calling and then take a run into the country and get home again without the risk of the battery giving out? If I don't make any long runs, how much use of the vehicle can I reply upon for ordinary femily purposes without having to recharge the batteries?

The answers to these questions will be found by an examination of the Trial Runs given in the preceding pages. Take, for instance, Trip No. 5 - The results show that a person living in New York might have used the vehicle for shopping, etc, in the morning and afterwards taken a pleasure run outs Morristown, Fer Hills and Somerville, New Jersey, covering nearly 100 miles during the afternoon and evening and still have gotten back home with an ample mergin of current. The other frial Runs, such as Nes. 1, 2, 5, 4, 6, 8,10 and 12 fully demonstrate similar possibilities of a liberal femily use of the vehicle around the city together with a tour into the country approximating 100 miles, without any necessity for a nervous apprehension of being "stuck" by the way. It should be understood, however, that these runs were made on the maximum charge that the bettery would store and the runs were made by an expert. The ordinary owner, until he became expert would probably not get more than the for these mileages and less if the battery was not fully charged.

and what is most encouraging of all is that the owner of such a vehicle operated by the Edison Storage Battery, on returning home, can connect his battery with the charging current, leave it and go to hed to sleep peacefully in full assurance that in the morning his battery will be re-charged and the vehicle ready to give him at least es much travel as it did the provious day, with as great a degree of certainty as before.

If the prospective purchaser should desire to use the vehicle every dey for running about the city, without taking any trips into the country, the "City Run" of Trial Test No. 7 will show what may be expected for this class of service. It will be seen from the results of this test that the average milesge was a trifle over 17 miles a day for seven days, or a total of 120 miles, with a single charge of the battery, and without paying any attention to the lattery - meanwhile, such a result would be shouldely impossible with a lead battery of the same capacity and twice the weight. In the

first place a lead bettery must be carefully watched and recharged at once after a certain quantity of current has been taken out. In the next place such mileage could not be made, and if the lead bettery were not recharged promptly upon arriving at the proper point, it would be bealty subhated and probably ruined. Under the conditions of city use shown in trial Test No. 7 the Edison bettery would need charging only once a week. And, differing from the lead bettery, the Edison bettery need not be charged immediately but may stand discharged without here.

The Edison storage battery thrives on work, and, barring accident or the grossest kind of careleseness or negligence, it will thus continue to perform its full duty up to its rated capacity, day in and day out, month after month. Our confidence in this, as exhibited by our guarantee, is born of knowledge and experience obtained from practical work.

#### The Customer's Pooket Book.

The reader of this pamphlet is probably a prospective purchaser of an electric vehicle, and the main question with him is to got the <u>greatest value</u> for his money. As to what constitutes the "greatest value", the following principal items may be enumerated:

- A continuation of uniformly high mileage runs on signle charges of the battery.
- Low cost of upkeep of battery for repairs and renewals.
- Little care or expert attention or danger of ruining the battery by lack of care.

#### 4. Long useful life of battery.

A person who is contemplating an outlay of two thousand dollars or more for an electric car is not usually actuated by "bargain-counter" motives, and ordinarily is willing to spend a few hundred dollars more if he can secure such advantages as these. And we claim and can prove beyond doubt, they are secured in a vehicle equipped with the Edison battery.

We do not attempt to deny, in fact, we make the statement, that a set of Edison storage batteries coats more than a set of leadacid batteries in the first cost of equipping a vehicle, in fact, they cost twice as much and, therefore, the customer is required to make a greator investment when purchasing a car with our betteries. But in doing so he is securing an equipment that is really the most economical because it conforms fully to the items of reliability, low cost, simplicity and long life above enumerated. The first year of service will smply prove this statement. The Edison bettery will outlast three lead batteries and give far more mileage.

By reason of inherent and absolutely unavoidable complexities in its very nature, the lead-acid battery cannot possibly be made so as to compare with the Edison storage battery. A few reasons why the latter is superior to the lead-cell will be found on page

In addition to these points of superiority we may point to the fact that in all the years of experiments on his bettery Mr. Edison's contant aim has been to eliminate the necessity of technical or expert attention after it has reached the outcomers' hands. Not only has he succeeded in this direction, but he has also brought it to such a state of perfection as to be practically "foolproof"; thus providing for the ordinary carelessness and neglect of attendants.

#### AS TO COST OF OPERATING ELECTRIC VEHICLES.

There is a popular impression that the cost of operating and maintaining an electric automobile is far beyond that of a carriage and team of horses. In making such a comparison, however, many qualifications should be considered, among which the following may be named:

- (1) The automobile is capable of making mileage that in both time and extent is absolutely impossible to horses by reason of their physical limitations.
- (2) If required, an electric vehicle with Edison battery could be used for travelling, say 50 to 100 miles a day every day, if roads were reasonably good. Such a performance would be beyond the possible andurance of horses.
- (3) Horses need feeding at least twice a day every day in the year. They must also receive frequent grooming and contant care to keep them in condition. A family electric with Edison bettery needs' absolutely no attention when not in use. The owner might bring it in from a run, look it up in his garage and go off to Europe for a year, and on his return find it ready for immediate use, after recharging. Incidentally, it may be remarked, such a course of procedure would absolutely ruin any other storage battery than the Edison.
- (4) A team of horses, if kept in the owner's stable, need the services of a stablemen. This man may also not as coachman, but it importatively required that he shall be experienced in the care of horses. To run a family electric having Edison storage battary, it is not mossesary to have a chauffeur or special employee. It may be operated by any man who works around the place, provided he has ordinary intelligence, the owner himself, or any of his family, including the ladies, can run such a cer without any trouble. The vehicle itself needs but little attention

beyond ciling, cleaning and charging. As to the latter operation, very ordinary intelligence is sufficient and only a few minutes of personal attention.

(5). For two horses suitable stables are required, with lofts or compertments for feed, hay and straw. Such building or buildings, together with oarriage house and the proper arrangements for containing stable refuse necessitate structures of ample dimensions. Their cost and maintenance form no inconsiderable item in the total expense of keeping horses and carriages. For a family electric only a small, simple building is required as a garage. A structure large enough to comfortably house the vehicle is all that is necessary. A portable house costing a few hundred dollars would be ample. For this reason, many persons who for lack of space are obliged to keep their horses and carriages at a livery stable, would be able to keep a family electric in a small garage on their own property. In many cases it would be possible to store the family electric in the basement of a residence by having an opening made in the lower part of the house and a sloping driveway leading to it. This, however, would be feasible only if the car were furnished with an Edison Storage Battery, for unlike the lead battery, it gives off no corrosive fumes and is entirely odorless.

It should be constantly borne in mind that when considered in comparison with horses, the greatly increased mileage and the unlimited use of the electric vehicles are factors of supreme importance.

#### THE SALESMAN.

The everage selemman or agent has an enthusiastic ambition to close a deal. His business is to make sales, and all sales bring grist to his mill. Hence, he usually follows the line of least resistance. If he is working on commission he makes his per centage on every sale, whether it be large or small. If he is working on salary, each deal he closes increases his prestige with the house he represents. In either case he will do all he cen to sell something to the enquirer.

Now, this may be all right from the salesman's standpoint, but in practice the principle does not always work to the advantage of the oustomer whose chief desire is to obtain a good and reliable article. Naturelly, he wishes to keep his investment down to the lowest point that is consistent with the attainment of his desires.

It is by reason of the conflict of these principles that many enquirers frequently become purchasers of low-priced electric vehicles with lead betteries that cause them much disappointment by imperfect performance later on. The average prospective purchaser is not an electrically technical person. ... His scitivities being in other direc-

tions, he knows but little about batteries, and has made no study of different types. Consequently, a battery to him is a battery and nothing more; simply a contrivance for furnishing some electricity.

If, therefore, he is shown several types of electric vehicle, and in each case two prices are named for the vehicle, the lower price including a lead bettery and the higher price the Edisch bettery, it will be quite natural that he will enquire the reason of the difference. The salesman will explain to the best of his ability. If his explenation is not full and explicit; if it is not impartial; if it does not meet the oustomary habit of mind of the enquirer; and if the intending purchaser has not made eny previous investigations of batteries, there may be a tendency towards minimizing the amount of investment.

The salesman is quick to perceive this, end is apt to follow the line of least resistance. He does not want to lose a sale, and therefore is not inclined to elaborate upon the possible difficulties that the purchaser is likely to encounter with the lower-priced outfit. Thus, the sale may be consummated and the purchaser may find that in the long run the minimum of investment is very far from being the most economical.

If, on the other hand, the prospective purchaser has taken the trouble to make some investigation of the <u>real facts</u> concerning the fwo distinctive types of Storage Battery, and has ascertained with certainty, as can easily be done, - their actual performance in several years of work, he will be in position to

be independent of the opinions of others, and will insist upon an Edison Battery with his vehicle.

In this way he will be assured of the highest possible use of his automobile with the minimum of expense and trouble.

"MONEY TALKS"-80 DO WRITTEN GUARANTEES.

The written guarantee of a responsible concern is equal to money. This is a self-evident proposition. Therefore, such a guarantee is an absolute protection to a purchaser. With it, no element of ohence enters into the transaction so for as the basic element of operation is concerned; and the very fact of its offer implies that we know by experience what the Edison Battery will do and are thus willing to back our knowledge.

We would like to be able to state definitely what real life an Edison storage battery may be expected to have, but we have been in business only about six years, and that is not long enough to enable us to make specific statement thereof. We may say, however, that quite a number of cells of a former type (inferior to the present type) have been in delivery service in New York for more than five years and ere still doing good work. Some of the new type "A", have been in similar service mearly three years and, on a recent test, show a great increase in capacity without deterioration of any sort.

We are so certain of its long life, that we are willing to guarantee that the Edison battery will be capable of

giving at least ninety percent (90%) of its rated capacity
after the years from date of delivery to the purchaser,
when used in a delivery wagon or in trucking service where
our inspectors have access. In pleasure vehicles, where
the conditions are less strenuous and exacting, a life even
longer than that should be expected. It will be quite obvious
that we could not afford to give such a guarantee if there
were not a wide margin of safety for us. This means, of
course, that the oustomer will benefit to a much greater degree
then the guarantee assures.

THE NUB OF THE MATTER.

you, the reader of this booklet, may be contemplating the purchase of an electric automobile for the use of pourself and family. You may be a merchant, banker, broker, lawyer, doctor or other kind of business men and have had no opportunity, or possibly, inclination to make a study of electricity or storage batteries.

You want an <u>electric</u> vehicle because it is cleanly, simple, noiseless, odorless and easy to operate, but you want to be sure that it will give you reasonable mileage and continuous service, month in month out, year after year, without requiring a lot of trouble and expense for expert attention and repairs.

Can you get it?

Our answer is "Yes, if you buy a standard vehicle with Edison storage batteries to operate it."

No men need remain in the dark as to the possibilities

and actual performance of the different classes of storage battery. The facts may be ascertained as definitely as the days of the week. We have given herein the facts as to our battery, both by actual road tests and laboratory results, and are prepared to stand by them.

If you will investigate impartially, intelligently and insistently, there is no doubt about your decision, it will be to use the Edison storage battery and no other.

EDISON STORAGE BATTERY COMPANY, Orange, N. J.

Should work in their gladers who for who for who for the recommendation of the control of the co

# Summary

A FEW Reasons WHY THE Edison BATTERY IS SUPERIOR TO THE LEAD.

#### Because it

Weighs but 48% to 56% of lead,
Occupies but 67% to 85% the space of lead,
Has a vastly greater life than lead,
Is more efficient than lead, Costs less to maintain than lead,

List uch cheaper than lead, each cheaper than lead, each cheaper than lead, each consequently there is No sulphation of plates, No corrosion of plates, No corrosion of plates,

No corrosion of terminals. No rotting away of trays, No corrosion of running gear.

#### Because there is

No buckling of plates, No growing of plates, No slopping of electrolyte, No loss of active material, No plate renewals, No sediment in jars, No cleaning out of jars, No breaking of jars, No lead cutting to do, No lead burning to do No expensive repair bills, No breaking down of plates due to vibration, No loss of active material due to excessive overcharge.

Because of

Extremely small loss in capacity while standing idle, No injury to cell if left discharged, No injury due to excessive overcharge.

Grows in capacity immediately it is put into service, Is easy to keep it supplied with water by means of convenient filling

Because

apparatus. Vibration does it no harm.

# ADVANTAGES OF MOTOR OVER

## FAMILY HORSE-VEHICLE.

#### ECONOMY.

#### IN MONEA:

- Cost spread over term of years, is less. Maintenance: Considering amount of work done the repairs or maintenance is less. 2.
- Labor: Requires less labor to care for, or
- groom. Attention: Requires none on days of rest.
- Space: Less space coupied in valuable city realty consequently lower rental charge. Service: Does more work than several horses. Б.
  - Fuel: Consumes none while idle.

#### IN TIME:

- 2.
- Makes much greater mileage in a given time. Oan work twenty-franching a day if necessary. Requires no days of rest. Easily handled in congested traffic, at good
- speed. Can be stabled where horses are not permitted.
- uan be stabled where norses are not permitted Always ready: no delay in getting away. Will pull despite weather or road conditions. Permits larger radius of travel than with 6. 7.
- horses.

#### IN SPACE:

- In stable.
- In street.

## OTHER ADVANTAGES:

- of gosts.
- 1. Less damage to roads.
  2. Dirt. dust and manure would disappear.
  3. Permits the accurate and easy determination

## ADVANTAGES OF ELECTRIC OVER

## GASOLINE VEHICLES.

1.

#### ECONOMY.

#### IN MONEY:

- Power: Lower cost of power, and less loss of power. Repairs: Greater simplicity, hence fewer repairs. Durability: More durable than reciprocal type.
- 2.
- 3.
- No elaborate repair tools needed.
- Attention: Much less than with gasoline. Insurance: Lower insurance rates and freedom from 5.
- limitations. Chauffeur: No expensive experienced chauffeur re-
- quired.

#### IN TIME:

- Starting: No cranking, instant starting. Readiness: Always ready.

electric vehicle.

- Adjustments: There are none that the driver need
  - Repairs: Less time in repair shop. Delays on road: Eliminated in properly, inspected

11.

#### OTHER ADVANTAGES.

- Simplicity of construction and operation. Power: Electric power universal.
- Danger: No danger from fire or explosion.
- Control: Complete at all times.
- Safety: To both operator and the public.
- No freezing: No cracked cylinders.
- No tanks to leak.
- Electric vehicles permitted where no gasoline
- Gasoline engine contains over 100 reciprocating parts. In course of time it shakes itself to
  - The electric motor has one moving pieges. part, rotating, hence absences of vibration and deterioration.

111.

# ADDITIONAL REASONS.

- No noise.
- No odor.
- 3. No smoke. No gears to shift; no clutch to throw.
- 4. No carburetter to get out of order. 5.
  - No ignition nor timing troubles.

In a letter to the Edison Storage Battery Co., dated March 14th, 1911, a manufacturer of automobiles says:

"We know that all the lead battery cars we put out made trouble. Practically every one of them had new batteries within or at the end of the first year. Almost every one went to excessive expense getting or trying to get expert battery service.

"We have had the Edison battery in our oars for eighteen or twenty months and no oustomer hes been to any expense on any battery whatever except for solution renewal. The first expense of battery repairs occurred yesterday, when a terminal poet was twisted off in our shop under the writer's eye."

We have had our say.

The man who pays out his good moneythe Buyer - has also something to say:

The foregoing is what we have to say about the Edwar Storage Battery.

Now let the buyer, the man who has paid out his good money, say something;

New Haven, Conn., August 8th, 1911.

Cowles Tolman, President, Holcomb Company,

New Haven, Conn.

Dear Sir:-

In answer to your inquiry concerning the new Edison battery which I am now using, would say I find them yeary satisfactory, requiring comparatively little care, and giving unusual mileage after charging. Mr. Edison surely deserves much credit for the success which he has attained.

> Very respectfully, (Dr.) A. E. Winchell.

Commonwealth Edison Co., Chicago, Ill., August 10, 1911.

Edison Storage Battery Company, Mr. C. B. Frayer, 1336 Peoples Gas Bldg., Chicago, Ill.

Dear Sir:-

Replying to your letter of July 18th.

We began using Edison betteries in December.

1909 in two of our Electric Rigs. One rig averaged about 46 miles per day and the other two about 30 miles per day. We are using now fourteen Edison betteries. We have very little trouble with them, in fact we are well pleased with the service they are giving.

Yours truly,

(signed) C. F. Clark,

CFC/P

Superintendent of Transportation

Note-These batters are in heavy trucks

J. G. WHITE & COMPANY 43 Exchange Place, New York City.

August 29th, 1911.

Mr. H. G. Thompson, Manager of R.R. Dept., Edison Storage Battery Co., Orange, N. J.

My Dear Mr. Thompson:-

The battery has been a great source of comfort in my beat this summer and as the time is now repidly approaching when we must leave the lake region and any we have been a summer and a sum

Awaiting your reply with interest, I remain,

Yours very truly.

L. R. Pomeroy.

get results of he was a war our

September 4th, 1911.

Edison Storage Battery Co., Orenge, N. J.

Dear Sirs:-

I have 54 cells of your 1-4 type bettery in a Waverly Electric coups. I have used this vehicly since October 1510, in the 15th of the 15th of the 15th of the 15th of 15th of

Yours very truly, J. C./Linneman.

44 Munn Avenue, East Orange, N. J. March 24th, 1911.

Edison Storage Battery Co., Orange, New Jersey.

Gentlemen:-

I have driven various electric cars in the aggregate, over thirty thousend miles. For the past two years I have used Edison batteries exclusively. I do not hesitate to say that rather than go back to the heavy, oumbersome type of lead battery, with its constant depreciation and heavy expense for upkeep, I would prefer to abandon the use of the electric car altogether.

My Bailey Car, with the Edison battery, is the best I have ever had and gives me the greatest satisfaction.

Yours sincerely.

Lerria T. Scarritt.

Kansas City, Mo., March 29th, 1911

Mr. J. G. Kirsten, #3501 Main Street, Kansas City, Mo.

Dear Sir:-

It will interset you to know that my betroit Electric Gar was etored on Hovember 28th with a portial charge of electricity and the car was not used again until March 14th, when with only an additional charge of one hour and a half I ran the car twenty-five miles before turning it over to your driver to be taken to your garge for inspection. Taking the car to your garge increased the mileage to 51 miles.

The car during the period of ite idleness of more than three and one half months etood in our garage wholely without heat, within which time, ae you know, we had below zero weather several times.

These facts seem to verify the claime made for the Edicon Battery at least as to its proof against injury by freezing weather and that the batteries do not become exhausted by leakage or injured by standing without recharging.

I have had my Detroit Electric eince last May, and have had no reason to complain, on the contrary, I am more than nleased with it.

Yours very truly.

Mrs. U. S. Epperson.

San Francisco, Calif., Mar. 1, 1911

Nestor Electric Vehicle Co., 137 Hayes St., City.

Gentlemen:

I take this opportunity of expressing my entire satisfaction with the workings, mileage, and general behavior of the Bailey Electric Victoria Phaeton, equipped with the new Edison storage battery, which I purchased from you sometime ago.

Will state that the up-keep is surprisingly low for the mileage obtained in climbing the steep hills in and about San Francisco. For instance, one hill had a 241% grade which my Bailey Electric climbed with ease.

I have no hesitancy in recommending this car to anyone desirous of purchasing a first-class electric vehicle. Yours very truly,

C. Carpy.

Extracts from letters from G. W. Holden regarding 40 cell A-4 Edison Battery used in Bailey Electric Victoria Phaston #106.

April 12, 1911 to Herreshoff Mfg. Co., Bristol, R. I.

"The performance of the Bailey in the short run (report' attached) showed that our claims are substantial and conservative - the car schually had a voit higher reading at the end of run than at the start, and undoubtedly had a good long run left in it - this after six mouths of absolute idleness."

April 20, 1911 to S. R. Bailey & Co., Ameabury, Mass.

"This carriage was charged last on October 18th and as a stood in ould house all winter (nearly and the sequent of the old gentlement is was brought out the day I called and tooks short run with the requit as per some record. The voltage was took a poor some of finished than when we will be set to the out of the called than when we will be set to the country of th

Bristol, R. I., April lo, 1911.

#### Report on Short Run & Condition Edison Battery in Bailey Electric #106

Equipment 40 A-4 Edison cells - 48 volt G. E. motor - 2 Passengers Battery had not been charged for about six months, Oct. 18, 1910. Roads very muddy - hard going.

Open circuit, Battery reading at start - 52 volts.

2nd Speed - 44 volts - 30 amps. - Bad road " " - 45.5 " - 22 " - Fair "

" - 46.5 " - 18 " - Good "
" - 45 " - 36 " - Bad " Up hill

" - 45 " - 30 " - Bad " Level

" - " - 43 " - 40 " - Up Hill

3rd " - 41 " - 42 " - Up Hill

n n \_ 45 n = 24 n = 16vel = 26m 10

п п - 47.5 п - 16 п - п

" - 41 " - 40 " - Up Hill

Open Circuit reading immediately after car stopped 52.5 volts

Mount Carmel, Pa., June 20th, 1911

S. R. Bailey & Co., Amesbury, Mass.

Dear Sirs:-

I have run a Bailey Victoria with Edison battery for a year over our very hilly country and have had no trouble covering 70 to 75 miles on a single charge, a total of over two thousand miles. You know the condition of our mud roads.

I am satisfied and pleased with the result.

Yours truly,

(signed) M. K. Watkins.

NOSE: - Mount Carmel, Pa., where Mr. Watkins' our is operated, is in the anthrectte region in the heart of the mountains and his favorite run includes a 30 minute claims of on the mountain where the car draws 80 to above the constituously. This Arough a 28 amperes at 60 voits continuously. This Arough a 28 ampere 60 voit to or Jine roads and the world has a normal discharge rate of 30 amperes through a 28 ampere 60 voit motor. There are no Jine roads in the vicinity.

E. W. M. B.

St. Paul, Minn., June 21st, 1911.

Mr. W. G. Bee, Edison Storage Battery Co., Orange, N.J.

Dear Sir:-

Battery doing better than I expected. The Baker Roadeter with 60 A-6 cells gave me on the first charge 112 miles with power to epare. It is a good "ad" for your batteries. Would like to see you up here.

Yours truly,

J₩

M. B. Carpenter.

June 23rd, 1911

Mr. D. H. Clark, Bell & Company, Orangeburg, N. Y.

Dear Mr. Clark:-

I have your letter of June 23rd inquiring about the Edison Storage Battery and it gives me great pleasure to be able to say that I have found it entirely satisfactory.

I think it is a wonderful battery, for ahead of supthing that has ever been produced and I have it from Mr. Edison himself that it should last a lifetime. My plant has now been installed about a year and the batteries do not show the alightest sign of deterioration; in fact it has not blan mosessary to change the supplies of the not blant mosessary to change the supplies of the not blant house on a shelf about 40° squere. In order to install the lead Batteries I would have been obliged to build an addition to w garage with elaborate shelves and passage ways designed for the constant over of the battery.

I left my summer home about the first of January and returned about the 9th of June. During that time I had my caretaker put distilled water in the batteries two or three times, but saids from that they did not have the all rejets and not be the control of the control of the original 110. The Battery will stend a great deal of abuse which would finish a lead battery. My experience with the lead battery is the property of the control of t

Yours very truly.

Edw. V. Hartford.

Amesbury, Mass., June 26, 1911.

Mr. W. G. Bee, Edison Storage Battery Co., Orange, N. J.

Dear Sir:-

I enclose copy of a letter from Mr. Watkins, who has given the battery what we consider the hardest use of any of our customers. This A-4 battery probably doesn't run ten minutes without going into double its normal discharge rate.

Mrs. M. M. Johnson, Hallowell, Me., has had a Bailey Phaeton about a month with a 54 A-4 battery and reports olimbing a hill that has "never been climbed by any gasoline car." She also reports getting 90 miles on one charge. The combination of poor roads and steep grades in that vicinity is certainly the worst that I have ever motored over. Our estimator mileage before selling the car was 75 miles.

Yours very truly,

S. R. BAILEY & COMPANY, Inc. E. W. M. Bailey, Treas. Kemsas City, Mo., June 26, 1911.

Mr. C. B. Frayer, 1336 Peoples Gas Bldg., Chicago, Ill.

Dear Sir:-

Us enclose under separats cover photograph of our new Detroit cars which was in a wrock last Wednesday. The our hit a telephone pole and a tree, one after the other, soing about fifteen miles an hour down hill, the owner having lost control of it, and threw it into the ourb and up into the tree.

We are sending you this photograph which shows the socident was that not a single bettery connection was broken, and that the car was run in three miles from town to our garage under its own power. Outside of a little wobble in the right rear wheel not a thing is wrong with the chassie.

The combination of the Detroit Electric and the Staten has certainly shown up wonderfully in this terrible accident. It would be rather hard to determine which is entitled to the most credit, the cer or the battery, but we certainly have great course for congestulation from the fact that this car had an Edison bettery, but we had had the lead of the state of the coupants of the coupants of the certainly have been beauty burned in addition to their present sortous injuries. They are, however, recovering rapidly, and have ordered a new Detroit Electric with Edison Battery, which we will deliver to them tomerow.

ANDERSON ELECTRIC CAR CO.

J. G. Kirsten, Kansas City Manager. Chicago, Ill., July 13th, 1911.

Edison Storage Battery Co., Orange, N.J.

Gentlemen:-

Answering your letter asking whether the storage batteries which I purchased with a Detroit mechine in April, 1910, are giving satisfaction, I take pleasure in stating that there has been no trouble of any nature with the batteries. The machine has been in use, not only during moderate weather, but also during the winter, and at no time was there the slightest difficulty in operation. The equipment assess to me to be ideal for the purpose.

The automobils has been used by my femily in and about Chicago, having made approximately 6000 miles, has been stored in a public garage when not in use, and the batteries have received about as much attention as if they did not exist, except charging and filling by the garage people. There have been no repairs.

Very truly yours, Geo. Kleine. Milwaukee, Wis., July 19, 1911.

Mr. C. B. Frayer, Chicago, Ill.

Dear Sir:-

I am more than pleased to telly out that I can just as pleased at the service I have getten out of my Edison batteries the service I have getten to the please of the service I have getten the please of the service I can be to the present time, since Sept. "Th. 1910, without one cent of repairs to me in any may. I have covered up to the present time 388s miles with my little oar, have never run out of power, and I think this remarkable the the fact that I have the present time to the fact that I have the present the please of the service I can be a service of the service

Yours very truly,

(Miss) L. Myers.

The following is an abtract from a letter received from Mr. F. M. Compton, Davies Bldg., Dayton, Ohio.

"I have found the filling trouble plotured so strongly to me in advance of the purchase of this battery by he dead at the purchase of this battery by he dead at the period by the second of the period of the perio

# THE LOOKOUT MOUNTAIN RAILWAY COMPANY

Suite 511-512 Continental Bldg.,

Denever, Colo., July 26, 1911.

My Dear Mr. Frayer;-

Replying to yours of suly 17th. I beg to say that I as greatly pleased with the Edison Entry I promohed of your people sighteem south seg. the is the say good to-day se the day of the say of the say

So far as I am able to discover, it is absolutely fool-proof, I have charged it at the rate of 45 ampere houre and have many times pushed the ourrent in at the rate of 125 ampere houre for two houre at a time to get enough to run me 70 or 80 miles.

As a hill-olimbing proposition, I have the let we any electric our is a success, but I me my our for all the foothill saute and least Sunday at life sizes and reached an elevation of nearly 20 but is all there is to it, but the bettery 1 happened to be in a mood to enroy the series and got me home, and I don't believe there are three lead batteries in the nation that could have duplicated the trip I made.

I have the battery in a Detroit run-about obnasis that weighs, battery and all, about 2000 blue, use 4 X 32 Palmar Web tires, and last year my total expenses did not exceed \$20.00 per month for juice, once, repairs, three, the a record that I will put against anything I have heard of up to the present

I have worn out a half dozen gas care hitting the high places in Oslifornia, when I had automobilities bad. I have settled down now to a real connectable methins and I wouldn't trade my Detroit run-shout with an addon bettory for the best machine ever built. From this you may gather that I have strok an easy, quiet get and enjoy a machine that dosen't call for obsulfour, analysis hands and all that

sort of thing. When I went to hit the high places I subsidize a friend of mine to undertake the job at \$5.00, an hour and that fills the bill, and for the time being I am running a free bus at a minimum of expense.

Hoping this will cover the questions you ask, and trusting that you will continue to prosper, I beg to remain,

Yous very truly,

# HERBERT GEORGE

Mr. C. B. Frayer, 1336 Peoples Gas Bldg., Chicago, Ill.

# THE LOOKOUT MOUNTAIN RAILWAY COMPANY - Incorporated -

Suite 511-512 Continental Bldg.

Denver, Colo., July 26, 1911.

My Dear Mr. Frayer :-

Last winter I put in three months in Florida.

If I wished one for my machine, I did a dozen times. It is
an ideal place to cell machines. The pest month I have been
over in Utah, and you do not know how I have missed my little
red machine. It seems strange the Detroit people haven't some
of your betteries at work in that town. It is an ideal town
for electrics and if I were to ship my our round a call you
at dozen batteries.

The seems of the period of the control of the
battery man lies and I consider as a proposition for
attery man purposes that my battery ought to be worth
\$1500. today instead of \$800. the price I raid a year and
a half aso.

You might incorporate this item in the letter I herowith enclose you.

I shall be in Utah from August 10th to August 25th. If you have any connections out there, sich them on to me. I stop at the Hotel Utah, and anybody will hold me out to your friends in Salt Lake City, from the lat all of the work of the Company o

I would be glad to hear from you in the meantime here in Denver.

Youre very truly.

H. George.

Mr. C. B. Frayer, 1336 People Gne Bldg., Chicago, Ill. W. H. VAN STRANDER, M. D. 61 Church Street,

Hartford, Conn., Sept. 7, 1911

The Holoomb Company,

105 Goffe Street,

New Haven, Conn.

Gentlemen:

You desire to know what I think of the new

Edison bettery, and what success I have had.

Have only had the battery about three months and ran

about one thousand miles.

To date it has been absolutely satisfactory. It gives no trouble and anyone without the least experience with batteries can take care of it. Give it water and electricity and that is all that is necessary.

Yours truly,

W. H. Van Strander.

# HOLLY LUMBER COMPANY

New Haven, Conn., Sept. 7, 1911.

The Holoomb Company. New Haven, Conn.

Gentlemen:-

Referring to the new Edison Batteries which you furnished me in the Detroit Electric car purchased of you early last spring, the same have proved to be very satisfactory. I have driven the car back and forth all summer to my shore cottage, Il miles from New Haven over the Fennford Hills, which are among the longest steep hills in this vicinity and the batteries have done the work splendidly. I am satisfied that they are by far the best batteries in the market for an electric pleasure vehicle.

Yours very truly, E. A. Beckley.

### COPY

# FARMINGTON SAVINGS BANK, FARMINGTON, CONN.

Mr. Cowles Tolman.

Pres. Holcomb Co.,

New Haven, Comm.

Dear Sir:-

You ask me to write you what I think of the new Edison Battery I am using in my Detroit Electric. In answer I will say I am very much pleased with the workings of this bettery and the car. They give entire satisfaction. With the experience I have had with the Edison battery, I am lead to believe it will do all that is claimed for it.

Yours very truly, H. W. Barbour. Extracts from letter of all John at Fisher

Nashua, N. H., Oot. 23rd, 1911.

Mr. W. G. Bee, Edwar Storage Battery Co

hapled with hew dry boils, and as requested will mention your bill number 1034s. Thank you wery much for your kind-nest.

months, and will say they seem better this Summer than they did a year 850, even then I could go 30 miles on a contract and the act of the act my vacations.

I have only run little over 2000 miles in the 18 months, I like the batteries very much.

If not too much trouble I would be much bleased it you would haswer the fallowing questions as probably before long I will be obliged to refull with new solution, at the present time they som all right.

when wharring up if would not week? How only on the anto when wharring up if would not know the name of the show ill to 120, which is a krist week? How one name 1.5 works per cell, will it show its found in the running of auto.

When putting in new solution, does it make any difference whether the cella are discharged or not? DO I disconnect all cells at once, or one at a time.

Yours very truly,

(Signed) John A. Fisher.

## Edison General File Series 1911. Battery, Storage - Federal Storage Battery Car Company (E-11-19)

This folder contains correspondence and other documents relating to the design, manufacture, and commercial promotion of battery-powered streetcars produced by the Federal Storage Battery Car Co. Included is discussion of Edison's purchase of property in Silver Lake, New Jersey, on behalf of the company, along with references to their problems with Miller Reses Hutchison's Klaxon horn. Among the correspondents are Ralph H. Beach, president of the company; William G. Bee, sales manager of the Edison Storage Battery Co.; and Frank L. Dyer, vice president and general edison Storage Battery Co. Other correspondents include W. Douglas Lysar, mayor of Gisborne, New Zealand; F. S. Spence of the Toronto Board of Control; and William W. and Lucien Wheatly, sales representatives in Chicago.

Approximately 90 percent of the documents have been selected. The items not selected consist primarily of letters of transmittal, memoranda regarding billing procedures, and circular letters.

Hr. Thomas A. Edison, Edison Storage Battery Oc., ORANGE, E.J. Door Mr. Edison: The attached clipping is from the Evening The I think I can see in this a good opportunity to get ticing for the oar, and in a way that will be offerth From this article it would appear that you are to You have to father many things, and Fancy be burdened with this one, and as your fame rest topon the of the real morit of having done things, you can add to that dready great name the merit of generocity, and at the time time keep people talking about the car. If you could write me a letter like the enclosed which I could have published it would help I think vory materially in selling cars. If you see no objection to writing this letter, kindly write it in your own handwriting and mail it to me, making of course any changes which you think should be made. Yours truly, B/HB Enc.

# [ATTACHMENT/ENCLOSURE]

Jan. 3, 1911.

Mr. R. H. Beach, 50 Church Street, NEW YORK CITY.

Doar Mr. Boach:

I can in the Evening Telogram of January 2nd a statement that I am the inventor of the storage battery car. In order that the erreneous impression may be corrected, and to give henor to when it is due I desire to say that I am the inventor of the storage battery that bears my name, also that you are the inventor of the storage battery that is driven successfully when equipped with this battery; that when you, at my request, undertook the improvement in the methods of car construction it was not possible, commercially, to drive a street car with a storage battery. By reason of the careful and intelligent work you have done, the structure of the car has been so improved by you as to not only permit the battery to drive it, but to make this method of driving ears the most coonomical one known.

Yours truly,

rHI

# SS OF THE ONDERFUL



Edison Leads the World In Scientific Attainments Because of New Storage Battery.

### DICTOGRAPH RECORDS AND RÉPEATS CONVERSATION

Dr. Flexner and Dr. Ehrlich, Who Discovered Dioxydiamidoarsenobenzol, Lead Medical Research.

The name of Thomas A. Edition stands the page year, in the page year, in the reason of the page year, in the reason of the page year, in the year, in the page year, in the page year, in the page year, in the year, in the page year, in the year, in th

Anather symboles investion, our in a laboration of the control of

werden. Withfield indicates the last has been and dragitime.

PERSONS W

#### EDISON STORAGE BATTERY CO. Federal Storage Battery Car Co. MFCormick Building - 193 Michigan Avenue

CHICAGO

Telephone Harrison 70

PERSONAL.

Mr. Thosas A. Edison,

Orange, New Jersey. Y Sea Commissioned

Orange, New Jersey. Y Sea Commissioned

My dear Mr. Edison:

My dear Mr. Edison:

One December 187th, 1910, we fitte you,

enclosing copy of our letter of early date to Mr. Beach

calling attention to our changed relationship toward

Mr. Beach and his car. We do not seem to be able to calling attention to our onangea rejaxionens coward mr. Beach and his car. We do not seem to be able to find any beads upon which we can do buckness with Hr. Beach at a profit, and we certainly campe active tupon any other basis. On January eth, and time to make a formal reply to completer of December 1. ember 27th, we called upon you personally and talked with you concerning the matter of starting in the bueiwith you concerning the matter of starting in the buerness of manufacturing and selling storage battery carpon an independent backs. You will doubtless recall the assurance you gave us at that time, by which we were encouraged to coneider the matter eeriously.

We have just received from Mr. Beach eome correspondence dated January 19th, copy enclosed, from which you will make note of the very limited way from which you will make note of the very limited way in which he proposed to handle the proposition. We had been assured that Mr. Beach was prepared to handle it in a large way, but it seems not. Our eastern friends in the railway field are now telling us that Mr. Beach has lost, or is fast louing, his golden opportunity. They say that some months ago has golden opportunity of a lift time to that the property of the company of the compa

In his letter of the 19th instant, Mr. Beach says, "We do not want to send any demonstration cars anywhere. We have three cars out now on demonstration and that is enough. We assume that the three cars referred to are the ones placed on the New York Grosstown, the Washington, Spa Springs & Gretta, and the West Orange Branch of the Erie Road. If there are any others, we do not know of them.

concerning the New York and Mashington experiments, we are inforced they were both been taken off and may not be returned to return the title was a strength of the they are presented to was given us by a presentation was sufficiently interested to look into the same of the second that the same and others that there are externating that stances. They see only the fact that the cars were tried and finally throm out; and in one case could Storage Battery cars substituted. Their conclusions are not favorable to the Beach Car, and we fear the Edison Battery has suffered in their estimation.

We have a great deal of prospective business in the contral was not in the contral was the first now seems to us almost cortain the property of the contral was not been deconstration care here. Furthermore, he seems unwilling to build such care as the relironde requirements of the contral was not been corresponded by the Hr. E. Healthy the creaty to blees an order for live care and Mr. Beach is dodging to the contral was not been contral to the contral was not been contral to care and Mr. Beach is dodging

Positively, we will not purchase demonstration cars from K. Been's company, and assume the additional burden of his scallures to make successful demonstrations in the case of the case of the case of the case tions in the case of the case of the case of the rights of Mr. Beach and his associates. Our plans are rapidly taking shape, and we must now know definitely where we stand with reference to the Eddson Storage Battery.

Propose to become associated with a prominent car building setablishment in the manufacture and sale of very light cars. To be able to conclude our arrangement successfully, we need your assurance that we may have the regular manufacturers discount, twenty becomes cont, on your batteries. The contract of the conclude with use such manufacturers and give us the same grade of the conclude with the such protection you have given and are still giving to Mr. Beach and his associates, we are propared to go chead. We do not wish to intervene between you and Mr. Beach in any arrangement you may have made with him.

We also wish to be understood that we do not desire to do anything to injure Mr. Beach and his associates in recovering the money which they have already invested. On the contrary, it is our purpose to give

them all the assistance in our power to sell the cars
they have already built. We have also spent a lot
which we would like to get back from the sale
of these cars. Evidently, they do not intend to extend their investment unless they sell the cars on
hand, and even then will only proceed in a very limited
way. It now looks as if it might be some time before
they are able to secure any bonaride some time before
they are able to secure any bonaride and you can
not afford the secure and the secure and the secure
to the secure and the secure and the secure and
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We therefore place the matter in your hands, and ask for a reply at your early convenience.

Yours very sincerely,

www.\_L

M.W. Wheathy

OPY.

January 3, 191

Mr.R. H. Beach

Pres., Federal Storage Battery Co., 50 Church St., New York.

Dear Sir:

Referring to Mr. Wheatly's letter of the 29th inst.

I acknowledge receipt of check for \$529.00, and tender an apology for the oversight in not acknowledging before.

As to Mr. Beach's letter of the 15th inst., relative to details of car, have refrained from answering until Mr. Lichter could be consulted on some of the points.

It is our present plan to figure on the construction of five passenger cars for the first order. In the partition dividing the smoking compartment from the balance of the car, a door will be necessary, and we very much prefer a sliding door to a swinging one, as experience has shown that the swinging door is not only very inconvenient, but delays the loading and unloading of passengers.

It is almost imperative that we provids some cross seats,

with reversible backs, in the main portions of the car to provide
for passengers taking the long rides. This, we understand from Mr.
Lichter, will require some change in your general plan of car construction, as well as arrangement of batteries. Can not the inner trusses
of your car be planned to lay below the floor of the car where the side
seats are arranged something on the line of pencil sketch attached?
If so, why not arrange to earry a portion of the batteries in box
arrangement under the center of the car and thereby increase the
number of batteries and by so doing increase the cars' efficiency?

There is nothing to prevent the use of a oar eight fest, six inches wide <a href="extracted measurement">extracted measurement</a>, and no doubt this will assist materially in the design of the oar and simplify the heating arrangements.

There is no doubt about the correctness of your statement, that a car with wide seats will provide more standing room, and that is all very wellfor short runs, but we must provide some comfort for those making the longer rides.

Mr. Lichter is very much opposed to chain gear and urgss strongly that spur gearing be used, and for that reason will ask you to figure on this gear for our cars. He does not insist on the General Electric Contecller, and if you have one that you are prepared to vouch for as being better than the General Electric, you are welcome to use it.

The question of operating with two main controllers, or one main and two master controllers is up to you to decide as you think best.

The Cooper Heater is agreeable to us, as is also the Klaxon Whistle.

When we first took up this matter, our Chief Enginser, Mr. Brown forwarded a complete map and profile of our line, and also gave.you full information as to stops, sto., so you will no doubt find all the information of this character you desire in your files. If they have become mislaid, kindly advise and we will replace them.

Yours truly,

(E. H. Conrades)
President

OOPY.

Jan. 12, 1911

East St. Louie, Columbia & Waterloo Ry., Mr. Edwin H. Conrades, Prest., Room 610 Merchants Laclede Bldg. ST. LOUIS, Mo.

Dear Sir:

Your esteemed favor of January 3rd was duly received. Mr. Wheatly came to New York the day after the receipt of your letter, and returned to Chicago the following day. While he was hers I promised him to come To St. Louis to take up personally with you the matter of building the oare you desire, and to make euch modificatione in our design as will meet with your approval. I find, however, owing to deferred appointments with some of the angineers of the Public Service Commission here, that I cannot get away as expected. I can call on you during the coming week, but it has occurred to me that if you can spare the time to come here it would be much better for you. My reason for suggesting this ie: You are seriously considering the use of these care; this means. the expanditure by you of a vary large sum of money, not only in the cars, and it is important to you not to make any mistakes in anything, and as this method of oar propulsion is now, it behooves you, as well as us, to be sepscially careful in venturing into unknown fielde.

Very naturally, we are abdious to sell you the oars, but we do not want to sell you a oar that we have the least doubt will not mest your approval fully. Now, you have a report from your

POTT.OAW. -2-

engineer, Mr. Lichter, which on the whole is favorable to this oar. Mr. higher is an honest, conscientious man, and has told you what he really believes; there are, however, many things to be considered by you which Mr. Lichter has not touched upon, which we ought to go over very carefully before you decide whether you will or will not adopt this method of propulsion on your road, and these things you can best go over here.

I feel that the above remarks are of peculiar force at this time, because this method of oar construction is new and for that reason should, by a prudent man which you no doubt are, be more carefully considered than would be necessary in an older form of the art; therefore, if it is possible for you to come here for a few days, two will do here, I think you would be better pleased in the end than you could possibly be by my coming there. If it is a question of expense, we will pay that.

In regard to the changes in the design you want, we can better take that up when we meet, but it is not out or place for us to say that we can furnish you a car body with part cross and part longitudinal seats if desired; it will of necessity be somewhat heavier than a car with all longitudinal seats. In case of cross seat arrangement we must place all batteries under the car. We can do this, but we try to hold to the plan of placing all batteries under the seats, which necessitates longitudinal seats, because by this arrangement we get the best possible distribution of weight, the least possible weight and the least cost. If, however, you prefer the other arrangement we will build the cars as you desire. On all other essential points, I think we are

ESTLO&W -3-

agreed, except as to the use of the chain drive.

I note that you say that Mr. Lichter prefers a spur gear drive. I have respect for Mr. Lichter's opinion and will gladly yield to hie desire in this respect, but we know that the chain is altogether to be preferred; it is much more economical as a power transmitter, so much so in fact that it is quite probable that a battery oar could not be constructed that would be satisfactory with the gear drive; it might be possible, but we doubt it. The life of the chain is greater, it makes less noise, is more simple to install and maintain and more easily adapts itself to the use of the free wheel, and its advantages in coacting are very much greater than is possible with the gear. I am quite confident that if Mr. Lichter would give this question a more careful study than he perhaps has, he will come to our opinion. We will be leds to furnish him information on the subject as he may desire.

The car which Mr. Lichter saw while here is now in regular occmercial service, carrying passengers, on the Erde Railroad. If you will come here and see for yourself what it can do, talk with the men who operate it, go over the question of the durability of this battery personally with Mr. Edison, see what kind of people you are dealing with and know by your own knowledge what has been accomplished in this very difficult art, I believe that you will adopt this method, but we do not want you to adopt it unless you really believe that it is the right thing for you. It truly is the best, but in order that we may make a success of your work we must have your whole-hearted cooperation.

ESTLC&W -4-

if you decide upon receipt of this letter to come here during the coming week, kindly telegram at our expense, and if you cannot do so, I will be glad to come to St. Louis and go over the matter with you.

Yours truly, FEDERAL STORAGE BATTERY CAR COMPANY.

R. H. Beach,

President.

o Aus

COPY.

January 16, 1911

Mr. R. H. Beach, President, Federal Storage Battery Car Co., 50 Church St., New York.

Dear Sir:

Your favor of the 12th instant has been read with much interest.

You are correct in assuming that I am conservative, and especially when considering a new proposition like yours. Furthermore, I am fres to say, that I know little about mechanical matters in general and less about electricity. It was due to these considerations that Mr. Liohter was sent to New York, and knowing him to be of a decidedly conservative temperament, his report has given me considerable confidence in the storage battery, but at the same time it has impressed me with the belief that there are defects in your oar when considered in connection with our enterprise.

For me, to come to New York to discuss these details with you would be simply a waste of time and money, as I must rely on Mr. Lichter, or a man of his character, in whom I have confidence, for advice and guidance in this matter.

The original proposition made by Mr. Wheatly, to send one each of the large and small cars out here for working out on

RHB-2-

Mr. Haines lines etill appeals to me as the most sensible proposition, and I am particularly disappointed as to the large oar
not being sent. I never gave the small oar serious consideration,
more than as a contrivance to demonstrate the working of the battery,
I know that Mr. Haines feels the same way, and have no doubt there
are many others who would avail thesselves of the opportunity to
etudy your oar if one was sent into this territory.

I realize that the introduction of your car, when once established as being thoroughly practical, means a revolution in city and suburban transportation, and like all new innovations will no doubt meet with radical improvements to such an extent that the oner you have now constructed will be out of date in the near future. In fact, if I had the road built and equipped for trolley care, my policy would be to eit back and let "the other fellow" do the experimenting.

For reasons previously stated, it is ussless for me to discuss the mechanical details with you, and wish to assure you that I am not disposed to be stubborn, further than to follow the advice of those in whom I have confidence.

The question of having some cross seats in the car is due to the belief that for long distance riding, it is imperative to have them or drive away business. If you would send a car cut here this objection might be found groundless.

Youre truly,

(E. H. Conrades,)

President.

Jan. 19, 1911.

Mr. Edw. H. Conrades, Prest.E.St.Louis, Col. Waterloo R.R., St. Louis, Mo.

Dear Sir:

Your favor of the 16th received this morning and the contents have been carefully noted.

I judge from your letter that what you want at this moment is a our operated over your read or Wh. Hayne' road in order that you may study its operation under the service conditions as many study its operation under the service conditions as one of the service of the service

The only process we know of to handle a bettery our successful 1 to be charge the on at intervals of every 30 atmosphere 1 at the control of the continuous of the continuous

Supposing you start out at six colock in the morning with five cars, and run all of them we will say for two hours which would enable you to handle your morning "runh hour builness". At the end of two hours commone to give the control minute charges, as they pass the barn or common to survice, for charging, as they pass this point. By the time your afternoon

KHC -2-

"rush hours" come in the afternoon, all of the ears would be well supplied with current, when you would again continue all of the ears for another two hours, and after that you could continue the process of giving them the short thirty minute chares.

From the above I think it will be clear to you that with one or in decomptration under ordinary efree trailway conditions were though the car might be a good car and in operate operating condition, it would only be possible and that it would be satisfactory to you or a fair example of what you would be able to accomplish with a number of such cars handling your service.

It appears very clear then that you must regard this entire battery car question as a system, and as each the excellent advantages it involves ever any other known system, can only be obtained by having a number of ears, and a proper opinion cannot be secured by operating only one

We if you would like to have one on five ours, we will build you either one or five oars upon epocifications and service requirements which we will agree upon beforehand with your Mr. Lichter or any one else that you may appoint for such a purpose. You approve the service may appoint you have a superior of the part o

If you regard the above proposition favorably and as a fair offer, kindly have Mr. Lichter advised so that he will take up with us the details of the specifications. We will cooperate with him and seet his views just as far as we can, and I believe we can substantially mest them. Your read is not a difficult one to operate over, except at one point, and that is at the Bridge. Here the grade is a bad one, and it will have the effect of reducing the apsed of the car from about 25 to about 10 miles proup, but cluy on the gradest at all other points you will be able to make 25 miles an hour.

EHC -3-

I think I can appreciate how you feel about this bettery car proposition being now. It is new. As to the improvements that will one that the thing of course we will one that will one improve these care. You should not one if you should the these care. You should not one I went thought wyself that I had a car commercially successful, that was a single truck car. Many improvements and constitutions, both in our present type of single truck or as well as in our double truck care, were therefore one of with and finally adopted before we offered the cure to the public, and at our own expanse. So it has been also with Mr. Edienni in perfecting the batteries.

Very likely, horaver, as time goes on and we have a larger experience in this type of construction we will find ways and seem of the proving the entire structure, but I think you will see the proving the entire structure, but I think you will see the proving the entire structure. The province is the province of the known methods of our propulsion. Of this there is no manner of doubt.

The oar that we have on the Eris R.R. is doing excellent work. It is running in conjunction with steam looo-motives on the regular published time tables of the read, and it maintains the schedule better than the steam trains have been able to do. The railroad officials are all highly pleased with the car, a fact which you may confirm by writing to those officials.

I know of nothing more that we can say to you, except that we are anxious to serve you and will do all that we can to meet your requirements to our best ability.

Yours very truly,

R. H. Beach.

Decet 4ont

0 0 P Y.

Jan. 19, 1911

Mr. W. W. Wheatly, Agent, Chicago. My dear Wheatly:

and have also received his letter of the 12th about Oon; adea, and have also received his letter of the 16th, oony of which he sent you, and whichwase in reply to mine of the 12th to his. I fully intended to go to St. Louis, but when I round that I could not go, I wrote Mr. Comrades Will the 16th that I could not go, I wrote Mr. Comrades Will letter of the 16th that the coulestion is left still in an uncertain state.

and do all I could be glad to go to Comrades or to anybody else and do all I could to induce the purchase of care, but I camot convince swelf that my presence in St. Louis would in itself result in selling Mr. Comrades any cars. If I thought it would, I would go there at cnoc.

I am writing Mr. Conrades as per the enclosed copy, which seems to be about the only thing we can do. We do not sant to send any demonstration to the sant to send any demonstration that is enough. They are all doing good work, and ought to be sufficient for the present. As I have repeatedly said to you; a man who seriously wants to buy, cars will come to this part of the country to see them. At any rate that is the way it seems to me.

There is a phase of this demonstration car matter that I fear has not appealed to you, or at least that you do not understand. Supposing that we put the big care on Mr. Gornades road; that is only one car. This our will travel about 10 the seming battery charges. Now suppose 10 mph. At 11 colock the battery is exhausted and the battery has to be put on charge and remain in the barn until it is fully charged again, which would require 7 hours out of service. In other words the most you could get out of the car, during daylight coll and would be very adverse to a practical and successful demonstration of the car before prospective oustoners. Now, if on the other hand, we sent Courades five care, and he could alternate the care in giving the batteries thirty minute charges, he could readly keep from

WWW-2-

Dur't you see from this how foolieh it is to actumpt to demonstrate the desirability of this method of our propulsion with only one oar? Row in the steam realroad service conditions are quite different. So far as I know stoam realroad trans operate on a schedule which read to the line of the l

We have just completed our test of the oar in This past ington. This road is all grades, running as high as 7%. This par with 113 cells of A/6 battery, operating only on grades, makes édeilee per eingle normal oharge of the battery, it operates on a schedule speed of 16 milee per hour, and as explained makes the 64 milee in four houre. We think this its speendid results, but the railroad people do not him this its speendid results, but the railroad people do not is impossible with one car at least min out all days impossible with one car at least min out all the hear how with two cars, but that how with two cars, but that how the car they can only keep it in service four hours during daylight hours.

Youre very truly,

R. H. Beach.

President.

H. F. Muller; Home Run Bunch and hi has supration to the Radion-Don't think any aurower necessary .5B - Street car am 2/2/11 Miller F. Moore. Ruselle, N.J. Jany Journa Society . Mechanical Eng Society of Naval Sochiteets Moore monstrate that fixed wheel pound ? archi

Bear

# R. H. BEACH ID FIFTH AVE., YEL 1992 GRAMERCY NEW YORK BEACH STORMS BATTERY CARS

February 8, 1911.

Mr. Thomas A. Edison, ORANGE, N.J.

My dear Mr. Edison:

I am sending you herewith the original letter from the Vice Chairman of the Board of Control of Toronto. The engineers of this city have been here, met you, gone through the battery plant, ridden on the car, saw the details of how we make the cars, and as far as I can see have expressed their entire approval, and if no strong influence is brought to bear upon them I think they will decide to use these cars. Of course all kinds of influence will be brought to bear uponthis Board of Control and the other city authorities and these engineers to induce them not to use the battery car. Perhaps you have not thought of it, but it would be a very serious thing for all of the trolley cars in Canada to have this large and important city adopt this method of operation. You and I know that this is the modern, scientific and economical way to do it, but unfortunately for us we are butting into an old established business, and must expect resistance from every source to every advance we make, therefore we should when an opportunity of this kind offers itself bring to bear the best efforts we are capable of to induce the people to use these cars, or in general to adopt this method.

The best thing that I know of at present that can be done is for you to write a letter to the Board of Control like the copy I enclose you. You will notice that I have suggested that they, if they desirs, engage as their consulting engineers the firm of Westinghouse. Church, Kerr & Co. of this City. Hy reason for making this suggestion is that this firm have made a study of these cars and the battery and honestly believe in them and will recommend them for use in Terente. I have this morning communicated with one of the officials of the Company, personally, and he tells me that if they are engaged by the City of Toronto in an advisory way that they will recommend these cars, that they do not do that out of any regard for us, but from an honest belief that they are the best thing that can be used. I can see some advantages in having this firm suggestod to the City of Toronto, because they are in no way allied with us. Their alliance whatever it may be in other respects is distinctly with that of the Westinghouse Electric Manufacturing Co., a concern that mamufactures apparatus for use with the trolley. They are a large concern of excollent standing. They did all of the electrical ongineering work for the great Pennsylvania Terminal in this City, a fact which makes them worthy of respect by any city in the world.

I make this suggestion because on page three of Mr. Spence's letter he says "Who are competent men who will give unprejudiced information and advice?"

If you can see your way clear to write the letter more or less as I have written it it will be the next step towards securing the contract.

I have arranged to go to Hentreal and spend there sufficient time in which to assist them to arrive at a conclusion as to the various dstails of a particular typs and size of car to meet their requirements, but the most important thing just at this moment in to convince them that this is the real thing beyond a doubt, and that you can do better than anybody else. Yours truly?

Yours truly A Bearly



Board of Control,

1911. G.G.Geary Esy K.C.Wayort crairmu

TL Church H. C. Hocken, J. J. Hard:

Thomas A. Edison, Esq., Orango, S. J.

Doar Sir:-

As a would of contain conditions, with the socials of which it is not necessary to trouble you, the dity of Coronto is about to undertake the conditions of a street willing system, which at the full to in some degree an extension of the existing privately such as a street will your ciliary system. It may to that the transported within administration of the ciliary independent in excessing and operation.

On the division of the civil was specificated with the company-avoid system will cover one part of the cross of the city, and the company-avoid system the other larger and more populous part.

In the year 1981, the franchise of the Company now operating attrest relimans in this city will expire. It is practically contain that the city will then take ever the old system and analogmate it with the new system which the city is commencing to construct. An important question to beignediately settled is the form of propolling power, which the city

fuster 1 at the Kind of property forwing Mine fluille More Covernt North purou in any hack and much cleenfer. Do not an Experient. Kum tun 6 yeur. probable tun 10 gum for of a laten o.Co topping Co Colonic Exc. Co. Nantur Da



Board of Control

G.G.Seary Esg.K.Etsayer tomirmon. Controller F. L.Chencestre tomirmon. FL Church H. C.Hocken J.J. Herd.

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will adopt. The improved Balson Storage Inttory has been discussed.
Furtors in the consideration of the question are the practicability
of interchanging cars between systems differently equipped, and the
fact that before very long the city, if it adopted the storage method,
would have to cattle the question of transforming the larger system,
as the maintenance of divers methods is franificatly undestrable.

There is, however, a lack of information available here concerning the storage battery method, and even investigation is a good deal harmored by the fact that experts here soom inclined to view the new plan as so much of an experiment, that even immediate offectiveness would not in their indementation adoption of that new plan until time had proved its continuous success. This view, though it strikes no so unscientific and unprogressive, soons to have a good deal of voicit.

It is my intention, personally, to make as much inquiry into the matter and secure as much information as is possible for one without technical or scientific qualifications. My object in writing to you



Board of Control,

1911. G.G.Geary, Esq.K.G.Wayori inairman Controller F. S.Shencesvica (ucirman T. C.Umoch

J. J. Wards

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is to assume information that may help to this end. What documents are available? What installations may be examined? Who are competent man who will give unprejudiced information and advice? Others of our Board of Control, the body responsible in this matter, will, I am confident, desire to follow such course as they are convinced is most in the public interest, and willing to go to a good deal of trouble and expense with that object in view.

Incidentally, may I mention a detail that has to be considered.
Standardisation of guage of a sivic railway system is desirable. Our
private system here has a guage of 4ft. 10 7/8". We are told that interchange between two-series processes continue difficulties, although
an unskilled citizen. (prhaps therefore, not qualified to judge) naturally imagines that a mechanical levice for speedily and easily changing
the guage of a car-track, is not an unsolvable proposition, if there were
no other method of meeting the difficulty——this, however, is morely
by the way.



Board of Control,

1911

9.G.Geary Esq.K.Estayorsonirman. Controller F. G.Grenceria anirman. F.L.Church H.C.Hocken.

. J. Kardi To 505. 2, 1911.

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Any descriptive abticles, decuments, prospectus, or other information relating to the Edison Glorage Battery and its adaptation to a street railway system, will be much appreciated, as well as any other information you feel from to send no in lines above mentioned.

Thanking you in advance for your anticipated reply, and with much respect, I am,

Yours sincoroly,

Elspence,

Buttery-Street Con

MM 7 11/11

Mr. F. L. Spence, Vice Chairman Board of Control, TORONTO, CANADA.

TORONTO, CARAD Dear Sir: Harmy william

Your esteemed favor of February 2nd ie before me. I did not reply to thie immediately upon receipt of it because I had understood that your engineers, Nesere. Rust and Aiken, were to vieit our Worke, and it occured to me that it would be better to await their arrival before replying.

I can appreciate how you feel about recommending to your people the use of care driven with etorage batteriee, especially as the use of the storage battery for driving etreet cars is new. Permit me to call your attention to the fact that while the specific application of storage batteries to this particular service is new, yet the several details of the car and battery and their uses are by no means new. The battery has been in succeeeful and very extensive use for six years under such diversified conditions as to leave no doubt of ite permanent success. The conditions that I refer to are when used in trucks, and these conditions are usually much more severe than when the same battery is used in a street car. A little thought upon your part will make this clear to you. The battery used in a truck is usually concealed within the body of the truck in a dark place, usually in a dirty place, where it is not readily getatable, whereas in a street car it is in a light clean place where it is readily getatable; also in operating trucks they are usually in the hande of men not qualified to properly care for them-In etreet care where a number are used a system of inspection can, and should be, installed which will at all times give to the batteries the attention which they require. This attention is emall,

but nevertheless should be given; therefore if the battery has operated during the long period of time that it has under the adverse conditions of trucking I feel that it is eafe to say that it will do even better work in street car service under the conditions you have. We have had experience enough to warrant us in giving you a proper and businesslike guarantee of the life of the battery. This insures you against financial loss on account of the possible failure of the battery to perform its work in your City; we take the risk.

As to the oar itself: This is a matter which any engineer who is component can judge for himself. The motor which drives the oar is old. It operates under conditions the same as in the trolley car, practically, a slightly ohanged condition due to the battery is more favorable for the motor than when used with the trolley. This is due to the lower voltage of the driving current, so that it can safely be said that if there is any change in the conditions so far as the electrical equipment to concerned, that is the motore, the controllers and the wiring of the car, it is favorable to the electrical equipment rather than unfavorable. It can therefore reasonably be expected that you will get a longer life from this part of your car structure by reason of the battery used than you would with the trolley.

As to the balance of the car: The design has been very carefully and intelligently worked out. The car body is made light, but not so light as to be fregile. It is stronger and more substantial than bodies have been made heretofore. The main feature of the body is the introduction of a lattice steel girder which gives to the body great rigidity longitudinally, and permits of a reduction in weight of the various parts of the structure, so that the total weight of the 26 ft. carbody is about 3500 lbs. as compared with the lightest

standard body made which is about 6800 lbs.

As to the structure of the truck, almost the same remarks apply. The truck is splendidly made. It is welded instead of riveted. It is intelligently designed, and I believe it is the best car truck ever made.

I am, personally, in no way interested in the manufacture of these cars, trucks and electrical equipment, and I have no selfished their use and what I say to you in regard to thom you may consider as an opinion unbiased.

As a proof of the excellent economy secured in the use of these cars I enclose you a reprint of a letter written by the Genl. Suptof the Railroad in Atlantic City, who tested one of these cars, which if you will refer to any of the engineers in your locality you will see, in case you are not already familiar with these facts, that the operation of this car as to the cost of current per car mile is much lower than you are now getting(I think I am safe in saying one third) from any like car in your city.

I have made some inquiry in regard to engineers in this locality who know something about these cars and batteries, and I am told that the firm of Westinghouse, Church, Kerr & Co., New York City, are a roliable firm, that they have studied this subject and are competant to advise you. You may communicate with them in regard to the matter, and I believe they would be glad to act as your consulting engineers.

In a general way, you are safe in assuming that the operation of these cars on your proposed road will be satisfactory to you. The cars are more reliable in their operation than the trolley. The system is more flexible, it is more convenient and the cars will move over any track in which the gauge is suitable.

In addition to the above advantages it happens that the combined

cost of all of the elements that go to make up a complete railway, the net result is very much cheaper both in first cost and in the cost of operation.

We can refer you to many firms who have used these batteries and shall be glad to do so if you desire.

I have written the Federal Storage Battery Car Company to mail to you, which I believe they have done, a complete set of their publications relating to these cars.

There is one of these cars in operation here on the Watchung branch of the Eric Railroad, which is doing excellent work. It has replaced a regular steam passenger train. Its cost of operation is about 15% per car mile as against \$1.14 per train mile, and the service performed for the 15% is exactly the same as that heretofore costing \$1.14, which gives you an idea of the relative economy.

I note on page three of your letter that in regard to the standardization of the gauge of your read that your present gauge is 4' 10-7/6".

1 knew of no method by which you could economically change the gauge of your cars, that is to fit the tracks so constructed as to permit a shifting of the gauge. I know of no case where this has ever been done, and would not believe it to be a feasible schome. However, as I have never gone into this particular phase of truck construction I could not very well advise you, but I should think it would be a difficult and very unsatisfactory arrangement. I see no reason, however, why you should not build your road of the same gauge as the balance of the roads in Toronito. Your cars can be built to any gauge you desire and these cars will be able to operate, provided the gauge is the same, over any of the lines in Toronito from your own forward or back, but if you install these cars the trolley cars will not be able to operate

PLS -- 5

over your line because you will have no trolley wire to feed them.

I have requested Hr. Beach, President of the Federal Storage Battery Car Company, who manufacture those cars to write you, and any further information you desire in regard to the matter I as sure he will very cheerfully give you. I saw him yesterday, and he said he had seen your Messrs. Rust and Aiken, and that he will be glad to go to Toronto to confer with you and your ongineers as to the dotails of the proposed installation, and I take placeure in recommending in the same to you may feel sure that you can rely upon his recommendations. For may trust him with the husiness which you have, and it you decide to place a contract with his rism for doing this works. I believe you will be satisfied with him the resembler.

Yours truly,

Tu.E.

561 Booch



Miller Gent His pilon lake plant listing or 14 FOR SALE Bud

A Modern Factory AT SOHO PARK, N. J.

(The depot is within 25 Yards of the property line.) 11 miles from New York on the Greenwood Lake Division of the Eric R. R., two miles from Newark N. J., 45 minutes from Broadway, New York.

REAL ESTATE. The land consists of an irregular plot containing 8½ acres, bounded on the north by the main line of the New York & Greenwood Lake R. R.; on the east by the Company's own private railroad siding; on the west by Willett Street, and on the south by the Morris Canal.

The Second River flows through the property fumishing ample water for the boilers and manufacturing purposes, and also developing 75 hosepower through a water turbine. The land is all solid upland, with no mash or soft ground. There are two artesian wells supplying ample pure water.

BUILDINGS. The photograph, plan and isometric perspective give a fair idea of the character of the factory. It is of full mill construction. The floors are 5 inches thick (4 inch with a 1 inch maple top). The floor space is 55,000 quare feet. There is a stable for our horses and an amply large wagon house.

There is a new fire-proof boiler house with light industrial railroad and tracks for handling the ash. For coal there is a storage capacity of some thousands of tons should it be desired to bring in a reserve stock over the canal.

There is plenty of shafting through the mill.

The buildings are sprinklered throughout and wired for electricity.

PLANT. The plant comprises the following:

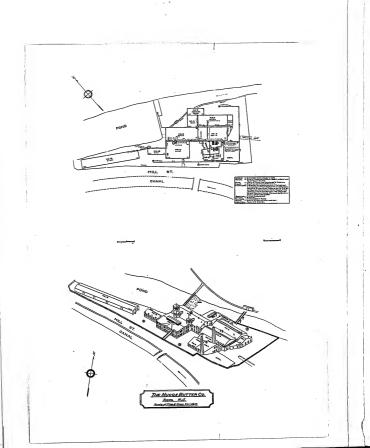
I. A freight elevator—75-horsepower water turbine—a steam engine of about 50-horsepower five good boilers developing 800-horsepower, all fitted with Parsons Automatic Force Draft System—a Robbins Belt Conveyor from the new coal treatle to the boilers—a small Westinghouse electric generator belted from the steam engine, developing electricity for the lichting system.

LABOR. There is plenty of labor to be had locally, and many attractive workmen's dwellings are situated in the immediate vicinity.

EXAMINATION. A watchman is on the premises, and the factory may be examined at any time. Upon application arrangements will be made to meet parties at the station, and conduct them through the factory.

PRICE. For price and further information apply

THE NUCOA BUTTER CO. 17 BATTERY PLACE, . . NEW YORK GITY



# TIME CARD, APRIL, 1911, ISSUE.

#### ERIE R. R.

# GREENWOOD LAKE DIVISION.

Hudson River Tubers—Through trains leave Broadway and 33rd Street for Eric Station, Jersey City, five minutes opert. Allow 29 minutes for train connection from 33rd Street, 17 minutes from 22rd Street and 12 minutes from the Hudson Twendami Building.

Leave	A.M.	AM.	л.ы.	А.М.	P.M.	Ρ. Ν.	р. м.	P.M.	P.M.
ERIE PERRIES									
N. Y. 24rd St.	7,00	8,50	9,40	11.05	12,25	1.25	2,35	8,30	4.18
N. Y. Chambers St.	7.08	8,30	10,00	11.15	12,70	1.43	2.45	25,000	4,30
Jersey City	7,20	9,08	10.14	11,30	12.47	2.00	35,00	11.44	4.44
*Soho		0).26	r10.07	11.58	f1.02	2,24			63.07
Soho Park	17,40		10,29	11.55	1.11	2,26			5,09
"Orelurd St.			10,42	11.57	1.14	2.28	11,25	4.09	5,11
		-				-			
*Orehard St.	3,27	6.30	6,55	7.39	M,RN	10,03	12,40	2.13	11,56
Soho Park		6,122	6.57	7.41		10,08	12.48		3,58

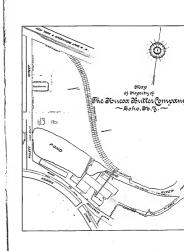
\*Soho

17,43 Jersey City 3,51 6.56 7.21 8.11 8.56 10.31 2.09 4.21 5,57 ERIE PERRIES 

5,30

5.22

\*Soho Park Station is practically on the property-Soho and Orchard Street Stations within live minutes walk.





SUPERINTENDENT'S RESIDENCE

This modem \$4,000 house is electric lighted and steam heated. The plumbing and all other conveniences are thoroughly modem and up-to-date.

SYNDENCE OF THE EXCELLENCE OF THESE CARS, MR. EDISON HAS GIVEN TO US THE RIGHT TO THE EXCLUSIVE USE OF HIS STORAGE BATTERY FOR TRACTION PURPOSES

#### FEDERAL STORAGE BATTERY CAR COMPANY

# BEACH CARS

#### EDISON STORAGE BATTERIES

1779 NUDSON TERMINAL

BO CHURCH STREET PHONE 3356 CONTLANDT NEW YORK CITY

June 3rd, 1911.

Mr. Thomas A. Edison,

Orange, N.J.

JUN 5- 19/1

JIN C

My dear Mr. Edison,

I onclose you horowith letter from HasAndrows & Forbes Co., which confirms the coveral conversations have had with their Hr. Ranson. The agreement which he outlines is exactly in accordance with the understanding I had with him and as I understand your instructions were.

We are getting very badly crowded for room over at the little shep and have simply got to have more room so kindly do not delay closing this proposition any longer them is necessary.

I enclose you copy of my reply to Massrs. MacAndrews & Forbes Co.

Yours truly, RADunk

President

B/GH



ABLE ADDRESS MACTORBES.

Ne.111 Tifth Avenue New York; June 2d 1911.

Mr. Ralph H. Beach, President,

Federal Storage Battery Car Co., 50 Church Street, City.

Dear Sir:-

Referring to our several interviews and telephone conversations with you in regard to our Silver Lake, N.J. property, we wish to state for the purpose of record and mutual understanding the essential points involved in your offer to purchase the property in question, as per your telephone message of the Sist uit. vis:

Your Company agrees to purchase the property at the price of \$35,000.00, paying \$5,000.00 at the time of passing the title, \$5,000.00 at the end of one year, (say June 15th 1912) the balance at the end of 5 years, (say June 15th 1917) the deferred payments to be secured by a proper purchase money bond and mortgage bearing interest at the rate of 5% per annum, payable semi-annually.

This proposition is acceptable to us and we will thank you for a confirmation of same in writing, upon receipt of which we will proceed with the preparation of the necessary documents.

Yours very truly,

MacAndrews & Forbes Company,

By-WE Ranson, Becretary.

COPY

Juno 3rd, 1911.

Mossrs. McAndrows & Forbos Co., 111 Fifth Ave., How York City.

Gontlemen:-

Attention of Mr. W.E.Ranson, Sect.

We have your estoomed fever of the End, in regard to the Silver Lake proposition. The conditions set forth in your letter are in accordance with our understanding except that the property will be sold to lir. Thomas Edinon or Thomas Edison, Ino., I am not sure which but either will be satisfactory, instead of to this company. I am sending your letter together with copy of this reply to lir. Edison today and you will hear directly from him in regard to it, probably from lir. Dyer.

Yours truly,

Prosident.

BCGH O'\_T.E.



#### LUCIEN WHEATLY

## EDERAL STORAGE BATTERY CAR CO. EDISON STORAGE BATTERIES

CHICAGO

June 5, 1911.

Mr. Thomas A. Edison,

Orange, N. J.

JUN 7- 1911

My Dear Mr. Edieon:

Enclosed I am handing you an Editorial, which was in the Chicago Record Herald this morning. It sounds good, and speaks well of you and your efforte. Think I will close a contract Wedneeday with Mr. Buoklen, whom Mr. Beach and I brought to your office about two weeks ago, for one of the Beach Cars, equipped with your battory.

Yours very truly, Inciem Wheatly

LW-A

Something for Edison to Live Por-Theistas A. Emnos', vull of years and deeply who in his evan field, has been deeply who in his evan field, has been should be the second of the second Association in New York. In addressing, the convention he turned the platform into a kind of Mount Plagah and abort a giaged last the from sized had of Further Effectived Dorclepment. Mr. Ennow mokes the equident proph-

ther Electrical Dorcelopment.
Mr. Elmost molecular people.
Mr. Elmost mole

door, if the consistence with whole he in the property of the

JAMES GOODEN

Suta Beston - Cappanes June 5th, 1911

au 6/14

Mr Thomas A. Edison:

Dear Mr Edison: --

We are now in a turnoil in our city about the granting of a 50 year franchise to the Banta Barbara Meotrical Company 33333 I are one of those who believe that the trolley has seen its best days, and therefore do not desire to tie up the city with such a long tem franchise. I believe that your stormars battery is going to solve the problem, and shall be gild to have from you some data. I have seen recently in Anglish and American Journals that you have succeeded in doing great things and # hope you will supply me with some particulars.

Yours truly,

Cars with the new Gaddeny out Two Cars with the new Gaddeny out Two Gene of the about ones that all core of the other of that all core of the other of the will be offered they will be the weakly with the way to be the offered they will be the weakly with the way they will be the offered they will be the weakly with the way they will be the offered they will be the weakly with the way they will be the offered they will be they will be the offered they will be the offered they will be they will be they will be they will be the offered they will be they will be they will be they will be the offered they will be th

as a precaution to protect the Te it peems to me it would be Re the attached. well to recommend that avery 3 only trouble I can see with this waks or so the bettany be duringed ligh rate boosting in that the celle 2015 hours at normal rate followed probably never are discharged down by a run without boosts so very fare - and a discharge now and that cells will get something like then is healthful accraise for the 7e In thomselves, I can't see any a complete discharge ever have in the 200 ampère ( 4 1/2 times mound rate) boosts, the only danger being that if they are to long the temperature may run up, but on Beach states that does not exceed 98. From the user's stand point, the all will require more frequent filling and the watt how officioning may file off due to the high changing voltage, but

AS EVIDENCE OF THE EXCELLENCE OF THESE CARS, MR. EDISON HAS GIVEN TO US THE RIGHT TO THE EXCLUSIVE USE OF HIS STORAGE BATTERY FOR TRACTION FURPOSES

### FEDERAL STORAGE BATTERY CAR COMPANY

BEACH CARS

EDISON STORAGE BATTERIES

1770 HUDSON TERMINAL

PHONE 3365 CDRTLAND

June 8th, 1911.

Er. Thomas A. Edison, orange, E.J. Hy dear Er. Edison:-

Hy dear Ir. Edison:
I have your note about Stewart: I reary know very

little about him and have absolutely nothing to do with him. Povertheless,
he keeps sending me letters through Er. Henford. I just not another obtain

which I am sending you.

In consection with this I received a very interesting better from Messes. Dick Merr & Co,Ltd., of London, which letter I am enclosing you a copy. You will note in the letter that they give it as their opinion that the trolley business is doomed in Great Brittan. I guess the truth is it is doomed everywhere but just when we will seal the doom is a hard question. The foot is, as I see it, that Dick Herr & Co. realize that trolley lines in England don't pay. This probably is true. One of the reasons is that in Ingland you know the Board of Trade rules governing the construction of street railway require an immonse outlay for feedows. In most cases they initiathe voltage drop to 5%. This makes it that they just simply don't pay. You, of course, will see the advantage of the battery car in connection with this.

To me it seems that when the slow-going Englishman realizes what the battery car can do for him he will go into it attensively. The occasion of this correspondence from Dick Korr & Co. came out of a very small thing.

Thomas A Edison---2

An editor of the Trammy World was trying to got us to give him an advertisement. I did not want to advertise ever there because in the first place I could not afford it and in the second place I thought it would not assume to enything now. In order to get rid of him I told him that if we had an agent there some business might develop. He sent a letter to blok Kerr & Oc. and they wrote us acking about the success and I wrote them telling them the facts and suggesting it may be worth thist while to take it up. The letter I enclose you in their reply. I think this letter expresses the pinion among the boot class of people, I mean the engineering firms, in Great Brittan.

I have another little point which is very interesting. I quote from a letter received yesterday from our in. Scott, whom I sent down to Salisbury to see how that car was running. We have had a little difficulty with people using these cars in that they overcharge the battery. This fault I was led into on account of my intent to keep the cost of the car down. I should have put a recording ammeter in the carywhich shows the input and output of the batteries and would permit the operator to got a pretty good idea of the condition of his batteries as to charge. As stated above I did not do this because I wanted to mave the menory but I will have to do it and in future will put one in each car.

The other thing I want to tell you is this, queting from Scott's letter:
"They are running the car entirely on boosts averaging 160 at 200 amperes
boosting 5 to 30 minutes averaging altogether 4 hours per day = 110 K.W.hours
and making 00 miles per day. This is a trifle over 1 K.W. hours per car mile
battery intake as mear as I can figure it. Is this the right way to handle
the car? Lefevero teld me it was (Lefevre is one of our workman) but I think
not. Please advise. There are about 750 passengers average per day and free
quently as many as 65 at a time ( the tar seats 26)but seldom less than 20.
The stope average about 11 per mile. Anyhow, everyone is pleased but I am
not satisfied. Notwithstanding with only one car carrying all fixed am
operating charges with interest and depreciation the Concord proposition is

Thomas A.Edison---3

paying more than \$25.00 per day profits." What I want to call your attention to is that down there in that little town on Concord, the population is about \$200, on a road two miles long with just one car the proposition on the whole is a ctually paying and still have a profit of \$25.00 per day. I have been a long time connected with street railway work but I have never heard of a one or road that could pay expenses before. This road at Salisbury has grades as high as 6% so we cannot be accused in this case of working under easy conditions. The car has been operating for two months and there has not been the clightest difficulty of any character. The temperature of the battery is 98. As far as I can see everything about the car and battery is all right. This car in equipped with 90 A=0 colls.

Yours traly, PASocol,

Prosident.

B /GL

57 Moorgate Street.

London, E. C. May 24th, 1911.

Dear Sirs:-

We have had further important interviews with the Directors of the London General Omnibus Co., and Mr. Gsorge Cawston.

We also have full confirmation of Morgan's control of the Tubes and Omnibue business; the latter were secured last wask only. The Canibus people want to get full control of the Battery for traction purposee in London, in order to stop its use Battery for traction purposes in London, in order to stop its use on the County Council tram lines, as the latter are now proposing further extensions. These we can do at half the cost proposing further extensions. These we can do at half the cost proposition of the second control cont an open market, as is the case in America.

We are willing to close the deal with the General Omnibus for 1,000 omnibuses to be made in 2 years, if Mr. Beach gives ue prices and guarantees, as requested, and also a statement, that no batteries will be sold to competing omnibus companies, so long as the London General teep 1,000 omnibuses in service. we will see the womeon wemeral keep 1,000 omnibuses in service, Flessegot this at once, and <u>only it to me</u>. At the same time, if so authorized, in writing we will at once take up the tramway matter with the County Council. We must, however, be satisfied that the batteries and equipment will be forthcoming when re-quired. You must also eend us some more catalogues of the Battery, including the old edition, and also of the Beach Car

Catalogue Mr. Cawston will, as I wrote you, take any required part in the Battery deal, banked by the Rothschilds. He is very keen on this. He will, if so required, buy up the Selly Oak Works, either for the manufacture of Batteries and Cars, or Cars only, as a private enterprise subject to proper arrangements for a supply of batteries.

His idea ie to form a big Company to handle freight for the Railways Companies in all English Cities. This service will require 2000 vehicles which can be run at from 1.100 to 185 per year less than horse or petrol cars. These he would make at Selly Oak,

These facts willshow you that it is necessary to ascertain who is to control the Battery before we can do anything here. In this connection, I learn that some difficulty exists with the Battery as to its loss of voltage and low efficiency.

I have advised Mr. Beach that my controllor absolutely sottles this question, and that we have proved it here up to the hilt on our own car. If he gets Mr. Irvan in control of the Battery business here, they can have the use of this apparatus and double the value of their bettery. I can get one of the new type ready in two weeks, as patterns are finished, and will come over and demonstrate its value if furnished with \$150 to pay cost of completion, testing and traveling expenses.c Our motors are also worth a fortune to the businees, on account of their high torque and officiency, and light weight. You may take it from me that Edison is solely delaying this English business because he wants

to get over the defects above named in his battery, and for no to get over the defects above named in his partery, and ter no other reason.

I have got over these defects after 7 years work, and can put him right, if he will make the trial.

put him right, but hy. Irvin and hr. Beach in full possession of above facts and make them realize that Morgan's people have above facts and make them realize that Morgan's people have severely appears that here at a cost of many severely hearness they know that the Edison secured control of the traction interests here at a cost of m millione eterling, largely because they know that the Edison battery solves the surface problem.

Knowing thie, they will spare no effort to control it.

If they do, Edison will lose half the battery businese
and almost all the tranway businese, while if Mr. Irvin controls,

ne will get all there is in signt.

If Mr. Irvin wants towin out, he should now get me over there with a controller, and we shall then be able to make a

deal. I can show the motor in New York, I can also bring over a letter from Mr. Cawaton, which will greatly assist us. If this is done, I should like to have a wire by June 1st, so that I can eail on the Srd. Yours truly, W. N. Stewart.

Messrs. Geo.B.Hanford, 25 Broad Street, New York.

57 Moorgate St., London, E. C. May 26th, 1911.

Dear Sirs,

I am in receipt of youre of the 15th instant.

We are quite ready to proceed with the construction of a sample emmilue, on receipt of Mr. Beach's figures as to cost of Battery, maintenance, guarantees etc.

Our cuntomere, the London General, would like to get control of the battery for use on tranways, in order to stop the County Council from using the cyctem on their cars.

This would not suit Mr. Edison and Mr. Beach, and we shall not consider any such arrangement.

We shall have no difficulty in getting cash for a vehicle works here, if Mr. Irvin gets the battery business finished.

#### Re Margette Tyre.

I have seen these people. They have been getting a very uneven quality of rubber on the treads from the present makers, and do not care to send any tyree abroad until their own works are in operation, which will be in about two weeks time. They are right in this as it would harm us if some of the sections were of bad quality. They will send two wheels as soon as possible and these may be used in front or rear, provided the brake apparatus can be suitably attached. This will probably be the case.

It is highly probable that Mr. Cawston will seriously take up the question of forming a Company for introducing railway vane, as the figures show a high economy over the coetly homse gystem now in use.

I hope to have more information for next mail. Look out for the Daimler people, as their man has gone over. Yours truly, Y. N. Stewart,

BEV- Beach

OOPY

Dick Kerr & Co., Ltd.
Abohurch Yard

Cannon St..

London, Eng.

Eav 25rd. 1911.

Mount

R.H.Beach,Esp., Prest. Federal Storago Battery Car Co. 1779 Hudson Terminal Bldg. New York City.

Doar Sir: -

We beg to acknowledge resolpt of your favor of the 5th inst. together with the printed matter referred to therein. We have considered
very cancefully the proposal which you make but regret we cannot see our
way to enter into negotiations on the subject. He doubt you would prefer
that we give you a definate reply at once rather than waste time in correspondence. Our decision is not based on any lack of appreciation of the
work you have done in developing this very interesting improvement in rail
traction; but our conviction is that in this country at all events the tram
way business is doomed owing to the growing competition in soif propelled
vehicles without rails. We have to thank you and ir. Wilcox for kindly
giving muchs opportunity of considering the matter.

Yours faithfully,

# IF THE EXCELLENCE OF THESE CARS, MR. EDISON HAS GIVEN TO US THE Exclusive use of his storage battery for traction purposes

# FEDERAL STORAGE BATTERY CAR COMPANY

BEACH CARS

### EDISON STORAGE BATTERIES

1779 NUOSON TERMINAL PHONE 3384 CONTLAHOT NEW YORK CITY

June 9th, 1911.

Hr. Thomas A. Edison,

Orango, H.J.

119 Ot Hill

My dear Mr. Edison; -

I just talked with MacAndrows & Forbes, the owners of the Licerice Works, and Mr. Rensom, the Manager, told me that the property would be deeded to you and the deed dated the 16th day of this month. The reason for this delay is that they want their Board of Directors to confirm the sale and they have a meeting on the 14th. This is purely formal but as you are purchasing real property you should have this formality, I believe, in order that no question as to title should thereafter ariso.

Yours truly, PHD2111h

President.

B/GH

CablerAddress "Edison/NewYork" Beach

Trom the Laboratory Thomas A. Edison;

Crange, N. J. June 13th 11.

R. H. Beach, Esq., 50 Church Street, New York City.

Beach: -

The opinion of boys here is that the bposting charge is all right at Concord, providing that the temperature never gets above 98, and what is better 95, and that every two weeks the battery should be given a long charge of twelve hours to insure that the iron should not go dopy. Also that particular attention should be given to filling with water. It should be kept up high as per instructions and never be permitted to go low, as to be too close too plates.

The idea boost is::- take out itwo--fifths and then boost. If you take out three-fifths before boost it is harder on battery and not so economical.

Better get a days run schedule showing ampere input and output on boosts and all data, mileage etc. on boosts, temperature, water line and send it to us.

(Signed)

# EAST ST. LOUIS. COLUMBIA & WATERLOO RAILWAY.

STOCK EXCHANGE BUILDING. 314 NORTH FOURTH STREET.

16540

St. Louis.

June 20,1911,

Mr. LeRoy Smith,

Soles Manager, Federal Storage Buttory Car Co., 50 Church St., New Work.

Doer Sir Your of May 22nd came duly to hand. We are obliged to you for your consideration and want to epolepies for our essuing dakey in answering you, We have been quickly investigating ever since or restrict yours of May 22nd. Nevry body is inclined to a think of his com, and we are inclined to think your our might be a good thing for any side line or feeder line by way of a connection with our main line of read,but as a straightout substrate proposition we do not think you here your proposition perfected as you. That is why we made you the preparation we do not think you here your proposition perfected as you. That is why we made you the preparation we do not think you here your proposition perfected as you. As we are being pushed on our proposition we are practically forced to go shead

with the over head evetem on our first construction.

want no over near gystem on our irre construction,
I wish to say in this connection, compatically, that I have always wished and
hoped for your successful eclying of this problem which you are working on, but which I now
feel you yourdries still condender uncelved, owing to your norm-acceptance of ry proposition.
You will please occues no for saying that I feel you have made a mistake, as per my
complanation made to hir. Bestly when he called on us here law.

If there are any new developments in your system as you go along that you feel ou would like to keep us posted on and which we might be interested in we will be very

thankful if you will let us hear from you, In conclusion, we wish to thank your Mr. Edison and Mr. Beach for the kind sitention shown our Mr. Lishter when he called on them by way of investigating your storage battery oar.

Edicin JI. FIITA dis

Yours very truly and appreciatively.

Carbon Copy to Mesers, Thos. Edies

W.W.Wheatly, L.C.Haynes, V.P., Z.St.Louis & Sub.Ry.

R.H.Beach.

Bur - Beach AS EVIDENCE OF THE EXCELLENCE OF THESE CARS, MR. EDISON HAS GIVEN TO US THE RIGHT TO THE EXCLUSIVE USE OF HIS STORAGE DATTERY FOR TRACTION PURPOSES

### FEDERAL STORAGE BATTERY CAR COMPANY

### BEACH CARS

EDISON STORAGE BATTERIES

July 8th, 1911.
Will give you a destate of one

Mr. Thomas A. Edison, Orange, N.J. Ly dear Mr. Edison,

We are up against a problem which seems like a very

little thing but we have got to get it solved somehow. . It is this problem of providing a whictle for cars in steam railroad service. We have been trying the Hutchinson Klaxon horn but it is not worth the powder to blow it up. Don't tell this to Hutchinson because I don't want to hurt his feelings but nevertheless it is true. I believe the thing can never work pormanently. They start out all right but get hearse and we have to keep constantly adjusting them and we want something on these cars for signaling that is dead reliable.

I have thought of working out some kind of a little motor compressor. The trouble with that is it takes so much power.

Would it be possible to make a special phonograph end reproduce a regular steam whistle? This seems to be the best thing if it is possible. Whether you could get it loud enough or not I do not know but I have often heard tones in the phonograph that were plenty loud enough. Kindly let me know what you think about the phonograph idea and if we cannot do it I will try and work out some kind of noise making thing that will do. We might put a little compressor over the axle and when the car is coasting pick up air enough for it. This don't seem like much of a problem but I have looked everywhere and can't find a horn that is any good. I like that phonograph

T.A.E. ---2

scheme because it takes very little power. If you think it is worth while I will come over there and do the experimenting.

Youre very truly,

President

B/GM

my dear new Edison

AS EVIDENCE OF THE EXCELLENCE OF THESE GARS, MR. EDISON HAS GIVEN TO US THE RIGHT TO THE EXCLUSIVE USE OF HIS STORAGE BATTERY FOR TRACTION PURPOSES March

#### FEDERAL STORAGE BATTERY CAR COMPANY

BEACH CARS

#### EDISON STORAGE BATTERIES

ITTE HUOSON TERMINAL SO CHURCH STREET PHONE SOME CONTLANO NEW YORK CITY

August 2nd, 1911.

Mr. Thomas A. Edison, Pres., Edison Storage Battory Co., Orange, H. J.

Dear Sir:

Herewith I beg to enclose a complimentary copy of paper propared and read by our President, Mr. Ralph H. Beach, at the 1sst Convention of the Electric Railway Association of the State of New York, upon the subject of the Edison Storage Battery and its application to railway car operation by the Beach Cars as developed by Mr. Beach. This paper has excited so much favorable comment from the electric railway world, I thought you would like to receive a copy.

It may also be of interest to you to know that bosides very economical and reliable operation of our battery cars on small roads, these cars are being operated very eatisfactorily at an exceedingly low operating and maintenance cost on a number of the most important electric and steam railroad systems of this country, and if you care to investigate further we would be pleased to refer you to the operating officials of those systems ueing Beach Cars so that you may obtain first hand roports as to the success of this new method of car operation.

We would also be glad to sond you some late printed matter.

Very truly yours,

FEDERAL STORAGE BATTERY CAR CO., Sales Manager

LRS/R Eno. 15 Breach

#### AS EVIDENCE OF THE EXCELLENCE OF THESE CARS, MR. EDISON HAS GIVEN TO US THE RIGHT TO THE EXCLUSIVE USE OF HIS STORAGE DATTERY FOR TRACTION PURPOSES

#### FEDERAL STORAGE BATTERY CAR COMPANY

MANUFACTURERS OF
BEACH CARS
EDUIPMEN WITH

MEW ADDRESS:
Principal Office & Warks, after August 19
Franklin Street, near Enhance Ave., SILVER LAKE, N. J.
TELEPHONE: 3133 BRANCH BROOK.

#### EDISON STORAGE BATTERIES

1772 HUGBON TERHINAL EO CHURCH STREET PHONE 3386 CORTLANOT NEW YORK CITY

August 15th, 1911.

Mr. T.A.Edison, o/o Morgan, Harjee & Co., 31 Boulevard Housman, Paris, France.

My dear Mr. Edison,

When you left I promised to send you data in regard to the long wheel base oar as soon as we had it out. We have now finished the oar and have already tested it. The oar has traveled about 500 miles since we finished it in test runs over the Erie track. You will find enclosed three photographs a quarter view, an interior and an interior with the batteries exposed. You already have a photograph of the line drawing showing the truck construction. This oar weighs just under 20,000. lbs. It seats 50 people, that is to say it has a seating capacity of 50 people provided it was all seats. In this particular car you will notice a portion of it is taken up with baggage space which makes it seat 40 people but we call it a 50 passenger car. The car takes on the ordinary tracks of the Erie such as you are familiar with about 650 watt hours per oar mile at a speed of 30 miles per hour including the station stope. As far as I am able to judge this car worke porfectly. I have ridden in the car almost steadily for five days watching its operation to the best of my ability and I can see no defect whatever except the body is too heavy. It is about 2000 lbs. too heavy but as I did not have the facilities at the time this body was made to get it out quick enough I had Brill make it and they could not make it light enough. We

issued the design but as had to use stock material in the roof and general framing they ran the weight up on us. However, the car is extremely light notwithetanding the above. You will note it is about 400 lbs. per seated passenger including the battery which consists of 200 A-5 cells.

During last week we had a great many reilroad men visit us and they rode on the car. All expressed theseelves as very much pleased with its operation and with the slight modifications in the body to reduce the weight I can see nothing further to do to this car to make the type a commercial success on branch lines of steam reilroad service. It works in and cut all of the yard curves splendidly. It accelerates good,

We will ship this car to Muckogee to-day.

Since you left we have received orders for one car from the Baltimore & Washington Transit Co., 2 cars from Henderscoville, N.C., 2 cars from Rock Mill, N.C., 1 car from the East Texas Traction Co., 1 car from Elkhart, Ind., 2 cars from Canton, Ohio. These are all single truck. An order from the Lewisburg, Milton & Watsentown Passenger Ry. Co. for a car similar to the photograph enclosed.

We are getting moved into the Silver Lake plant and have two ours being put together there now. On the whole we are getting along about as well as oan be expected in view of the fact that all of this work is nioneer work.

I sincerely hope you are having a very pleasant trip and will come back with lots of good health and courage.

About the sale of our plans and patents in Europe I believe it is a little toc early to consider it. I find we are likely to get some pretty good patents, in fact, better than I had anticipated. There are really some new features about these cars and while probably none are fundamental they are as good as anyone can get and they may possibly be worth something. Unless we get an offer that is rather attractive I think it would be a good plan to wait a year or so and get the business developed over here. However, if you get something that really looks good why let her go although I am not just crazy to make any deal.

About the only trouble we have had has been with Billy Bee. Billy seems to think we ought to be more prompt in paying our bills over here. I suppose the truth is we could but we have reduced the account and between cash payments and batteries returned, which were on trial, we owe you now about \$7500 .. When you left we owed you about \$14,000. I am following exactly the plan which we outlined, that is, I sell oars for 1/3 oash with order, 1/3 on delivery and 1/3 thirty days thereafter. We keep the first third, you get the second and a portion of the last to complete your payment. This strikes me as being a pretty fair arrangement. We are getting this making of cars down pretty fine when we can build the car as cheap as you can make the batteries which is about where we come off.

Yours truly

President

B/GM Enc. 3 photos.

I not recurrent and mothers and two Be .. 4.

W. DOUGLAS LYSNAR

Private & Confidential

Thomas Edison Esq., New Jersey U.S.A.

Dear Sir,

U.S.A.

William value of the control of the control

I had with you early in July of last year in regard to the suitsbility of your Storage Battery Cars for the Municipal Fram service of this town.

Girliorne v z

You then satisfied me personally that they would be suitable for our requirements and after a considerable emount of delay and trouble I have succeeded in getting the Council to order two of these cars from the Storage Battery Car Company, with the intention of ordering further cars if these prove satisfactory, and the contract for these went forward by last month's mail.

I now take the liberty of writing you personally in this matter, and to let you know that thore is a very large unount of public interest being taken throughout the whole of this Dominion as to the success of your Battery Cars, and I think it is hardly necessary for me to impress upon you that it is important that a reliable up-to-dute article is sent, and I would thank you to give this your personal attention in your own interests as well as mine.

V. DOUGLAS LYSNAR

Gishorne n.z.,

\_\_\_ August\_\_\_18th \_\_\_\_1961.

2.

I have had enquiries from all parts of New Zesland, including some of the largest Municipal Corporations, in regard to these cars, and in each case I have spoken very strongly in favour of them, and as is to be expected in regard to any new invention such as this, there is a good deal of hostility shown to it by experts and others who are no doubt interested in the systems that would be prejudically affected by its adoption.

For your information I am posting you a copy of the press report of the meeting at which the ours were ordered, and also publications in regard to them which appeared in our papers of last evening and this morning.

I am also forwarding you a copy of my letter to the Mayor of Palmorston North, which has been fairly widely circulated through the Pross of the Dand mion.

There has also been a considerable amount of other matter published, and it is fairly certain that the result of the Gisborne order will be carefully watched before any further orders go forward.

I regret to say the acting under Doctors orders, I have to take a long rest from public duties, in consequence of my

W. DOUGLAS LYSNAR ARRISTED & SOLIGITOR.

Gisborne N.Z.

August 18th 19611.

3.

having had to undergo an operation for the removal of one of my eyes, which was really caused by overwork, and I intend in a few days to hand in my resignation from the Office of Mayor.

I mention this fact to you in case any question should arise in the carrying out of the order that requires referring back to the Opuncil.

At my interview with you, you were good enough to give me your views on the labour question for publication. This I had done in the leading press of London, Australia, and New Zesland .

I posted you a copy of one of the London papers which I trust room you duly received, and you are satisfied that the report was correct.

Believe me, Yours sincerely,

W.D.L./A.A.G.

Mr. Thos. E. Edison.

Or ange,

New Jersey, Angle 1920 of Manager of Manager

"The Pond" are saying and give- you a ffar change

statements if incorrect.

Yours fuithfully,

J. Todrig Willy

THE POVERTY RAY HERALD, WEDNESDAY, AUGUST 16, 1911.

# TOWN FOITION

BATTERY CARS.
GISBURNES COURAGE ADMIRED.

AN EXPERTS CRITICISM.

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"THE BATTERY'S BLAZIFI.
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# DAMAGES AGAINST DOCTOR.

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A very fine film showing the investiture of the Prince of Wales will be shown for ta-night only at His Majorty's - . Air.A

SI EVIDENCE OF THE EXCELLENCE OF THESE CARS, MR. EDISON HAS GIVEN TO US THE

# FEDERAL STORAGE BATTERY CAR COMPANY

## BEACH CARS

### EDISON STORAGE BATTERIES

WELLS FARSO & CO., SLYER LAKE, N. J., PRIFASS.

ERIE R. S., SLYER LAKE, N. J., SHIVER LAKE (SELLEVILLE) NEW JESSEY

GENERAL OFFICE AND WORKS) FRANCES IN STREET, NEW JESSEY

GENERAL OFFICE AND WORKS) FRANCES FRANCES FRAN

SILVER LAKE, NEW JERSEY

EY (Ootober 9, 1911.

Mr. Thomas A. Edison, Orange, N. J. My dear Mr. Edison:

Enclosed you will find a condensed report of our sales to date. You will note that we now have nine care in operation. All are eatisfactory to the users. We have thrse repeat orders. We are now constructing sixteen cars. We are in one of the buildings but are considerably oramped for room because the tenants in the second building are not out and we understand will not be out until the first of Rovember. However, wo are getting along the best we can and making fairly good progress. All the cars we have sold are sold for money or the equivalent. We have no cars on trial and every order we have secured has been secured without any political or personal influence or commivance in any way. The terms on which we are selling care are the same as other car builders sell on. In the beginning we were compelled to sell a few cars on specially long terms in order to get some in operation. We did this to overcome the peculiar predjudice against battery cars. This predjudice has in no means been satirely overcome but in some measure it has. I find that in localities where we have cars we get more orders; for instance, we sold a car last Spring to Concord, N. C., and we have now sold in Charlotte, Hendsrsonville, N. C. and Rock Hill, S. C., all because of the successful operation of the first car at Concord. We did have out three cars on trial. These have all been sold; the one at Wachington was cold to Patchogue; the one at Fhiladelphia was sold to Washington; and the one on the Eric road was sold to run between Montandon and Hifflingburg, Pa. It is interseting to note the price secured for these second

Thomas A. Edison -2.

hand cars; almost the price of a new one and nearly, if not quite, ten times the price of a second hand trolley car.

The prospects for business are good, nothwithstending the fact that the car business generally is very bad. Three of the five plants of the Brill Company are closed: the Barney and Smith plant at Dayton, O. is closed. Prices of etandard equipment are extremely low. For instance, G.E. 52 equipment which for years has sold at \$1125. is now boing sold at \$750.

We are getting some experience showing the cost of operation of these cars extending over a considerable period of time. The Suffolk Traction Company report that their cost of operation is light per our mile. In this light they are paying 524 per k.w. hr. for ourrent. This is a very fair showing and compares very favorably with the trolley. We had estimated in sterm railway service that the cost of operation of a double truck car would be 9.08¢. The Hontandon & Hifflingburg Company report that their actual cost of operation is 9.5¢. This Company are paying last per k.w. hr.

We are putting into these cars a superior quality of materials, probably better than the average car builder, and are now beginning to be recognized in the trade as builders of first class cars. We are constantly being asked to furnish cars of this type for trolley equipment but have always declined to do so-

The cars which we have built and which we now have on order consume 3055 cells made up as follows:

400 A/4 - 2,440 A/6 - 215 A/8 - of a total value of \$59,790.

I hope the above will be of interest to you.

Yours truly,

H Bowsh,

в/w Rno

October 1, 1911.

Mr. Beach:

Herewith my report as of Cotober 1, 1911.

NOTE: @ indicates cars second hand and used for six to twelve months.

x indicates cars in operation.

indicates cars not delivered.

() indicates repeat orders.


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1	1 2		1 1			Summit, Miss. Ephrata, Pa. New Zeeland Australia, Sydney Rioto, Japan Gisborne, N.Zealand.	Steam R.R. Interurban Steam R. R. Urban		11,150 12,000 12,500 6,500 13,000
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	1 (1		(1	1		PRHDING EXECUTIO Muskogoo, Okla. Tarentum, Pa. Petchogue, L. I. Montsndon-Mifflingburgh M.Y.C. & H.H. RR.	Interurban Suburban Interurban	-	12,500 7,900 6,500 12,500 25,000
Γ	2	2 4 Fotal Expected Within a Month				n a Month	H	\$ 64,400	
t	13	1	١,	1	2	GRAND TOTAL	1.	4	\$251,550

# FEDERAL STORAGE BATTERY CAR COMPANY

aflantici Cità father W ( brady Esq) heren Eene At allen ) would suggest that he conson appoint a committee to morrisque The storage bettery cars we operature un vereions ports afelia Country driven beginny new battony - I pudiet of great futures for the care lefthis charmalis a think the Committee of apparented will be empired both tabusally a Commowerally 762

S EVIDENCE OF THE EXCELLENCE OF THESE CARS, HR EDISON HAS GIVEN TO US THE

# FEDERAL STORAGE BATTERY CAR COMPANY

# BEACH CARS

## EDISON STORAGE BATTERIES

SILVER LAKE, NEW JERSEY October 16, 1911.

Mr. Thomas A. Edison, Orange, N. J.

My dear Mr. Edison:

Attached please find letter from W. H. Lyenar, Emyor of Glaborne, New Zoaland. We have a contract from the City of Glaborne, dated July 15, 1911 for two eingle truck cars. These ones are to be equipped each with 105 cells of A/S battery. We are at work on the care and we believe from our study of the conditions at Glaborne that the care will do their work satisfactorily. It. Harris the agont for New Zoaland is here and has been here for coverel months in your battery plant with a view of equipping himself with a technical knowledge of that he can handle those batteries properly. He is coming down here to work in a chort time and will go out to New Zealand with the care and install them. We fell sure that these care will prove satisfactory. Think you need have no hosttation in so advising Ir. Lyenar.

Yours tr

GB Dece FU,

B/W Enc.

Bisharne, B.S.

3rd June

1

Dear Sir /

Yours of the 29th Ulto. to hand, and I may say that, up to the present, 'he Gisborne Borough Council has not finally decided what shall be done regarding the Edison Beach Battery Car. Its consideration by the old Council was delayed through various reasons, and since the new Council has taken office I have unfortunately been unable to attend the meetings and the matter is standing down, while in the meantime, the Council is proceeding with the transmy system in other respects. Our rails are here and we hope to have the sleepers to hand in the course of the next two or three months and the track will then be put under construction. I still nope and believe our Council will decide on the installation of the Beach cars. Personally I have no doubt whatever about them and I would much prefer to accept the guarantee of Mr. Thomas Edison than the reports of any experts that might be sent to New York to investigate. Mr Edison is prepared to guarantee to our Borough that his battery will do 90% of the work he stipulates it will do for the first three years, and after that time, upon the renewal of the positive plates of the battory which he is prepared to supply at helf the original cost, he will guarantee the battery to continue 90% of the work for a further three years, making a total of six years guarantee in all your obedient Servant, When in New York I made special enquiries to

secretain whether the battery was out of its experimental stage and I was convinced from the information I obtained that it was so. I might point out that

Bisharne, B.S.

3rd June 1901

(Continued, No 1)

while the battery has not been running long in connection with actual tram work, yet it has been running in actual use in connection with waggon work in the United States. One firm I had the opportunity of obtaining particulars from, stated that they had had a large number of delivery waggons in use between one and two years and they had given entire satisfaction and I learned that there were hundreds of delivery vans in and about New York with Edison's battery and they were giving absolute satisfaction. I put the question pointedly to Mr. Edison himself at to whether the battery could be regarded as out of its experimental stage and he assured me that it was so and to use his own words "The machine is brutally strong and will work for 20 years." Mr. Edison took me into his vard and showed me a motor vonicle which he had comstructed over three years was previously and it was still in use and doing good work, yet he had refused to allow that battery to be adopted because of a slight defect no had dete ted after about a 3000 mile run on a bad road, and he stated that although he had been pressed by experts to allow the machine to go on the market he had declined to do so until he had what he considered in his own mind an absolutely perfect car, which he claims he has now and which he has been working at for To years.

With the number of successes that have been achieved by this great invalues being a successes that have been achieved by this great invalues being a success that have been achieved by this great invalues being a success that have been all 10,000 hands working in his laboratory in Her Jorney and 11 is estimated that there is me 9,000,000 pocale, all over the world today working on his patents, all

3rd June

Gisherne, O.S. (Continued, No 2)

assurance and guarantee given by such an eminent man on this question of the Beach Battery Car could, I think be accepted without hesitation by us in New Sealand.

I also took the opportunity of discussing the prospects of the car with several of the greatest electrical engineering experts in London and tried to ascertain if they knew of any reason why the car should not be successful, and while there were strong objections to it, they were unable to gi e any tangible reasons against it. If Mr. Edison's guarantee as not forthcoming and there were any reasonable doubts I would agree that it would be advisable to send an expert over to America, but as it is, I fail to see what could be gained by adopting such a materna course, as the gentleman sent over o ald only judge the position from what he was told by those people who have used the batteries and assuming that all the data he could collect would be favorable, I still think that the personal guarantee of the great inventor himself is better and of greater value to our Corporations than a report from a dozen experts wo mignt send over to New York. I rode in the cars and it was impossible to tell any difference from the overhead trolley system beyond, perhaps, the fact that the Edison car seemed a little more silent in the working x of its machinery. I hope at an early date to be able to discuss the description the till discorne Council and I trust they will complete the necessary contract for some of these cars. Town Clerk. I might add that I notice the Federal Storage Batt

Gisharne, B.S. ...

d June

Company estimate that it will take about £88,000
plus freight and oustom charges to construct 8 miles
of track with 8 cars. This is very close to the
estimate that the disborne Council is working upon,
which is £85,000 for 7 miles of track with 4 cars.

Trusting that your good city, as well as disborne, will ultimately install the Edison cars x and that they will prove a lasting and permanent benefit to ar respective towns.

Yours faithfully

Mayor of Gisborne.

J. A. Hash Req.

Mayor of Palmerston H.

PALMERSTON M.

p. 5. I had the running cost, as stated by the Beach Battery Co. compared with the extual cost of running the Christ-Couron cors (as that city is rist like disborne) theating electricity at 3d per unit in each flustance and the Edison car would cost exactly half to run per loaded car mile as compared to the Christ Christ cost for the trolley system. I have not the actual of the but I have given you the bald result.

Town Clerk.

BON - BLOOM AS EVIDENCE OF THE EXCELLENCE OF THESE CARS, MR. EDISON HAS GIVEN TO US THE

# FEDERAL STORAGE BATTERY CAR COMPANY

### BEACH CARS

## EDISON STORAGE BATTERIES

PERSONT
WILLS FAME & CO. BLYSELIER R. J., PERFORD
GENERAL OFFICE AND WORKS; FRANKLIN STREET, NEAR BELMONT AVENUE
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GENERAL OFFICE AND WORKS; FRANKLIN STREET, NEAR BELMONT AVENUE

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GENERAL OFFICE AND WORKS; FRANKLIN STREET, NEAR BELMONT AVENUE

GENERAL OFFIC

SILVER LAKE, NEW JERSEN Cotober 19, 191

Mr. Thomas A. Edison, Orange, N. J.

My dear Mr. Edison:

I have a letter from William J. Clark of the General Electric Company notifying that Mr. 2. Frame Thomson and his wife will be at the Hotel Belmont on October Slet. Mr. Thomson is a very important factor, so Mr. Clark eyes, in the Street Hallways of Bunnes Aires and Hontevideo. He wants to meet you. I have taken the liberty of tebling him I would call for the entire party with an automobile and bring them out on that date. If you are not going to be available on Tuesday, October Slet, kindly let me know.

N. H. Beach

NGE OF THESE GARS, MR. ROISON HAS GIVEN TO US THE OF HIS STORAGE SATTERY FOR TRACTION PURPOSES

# FEDERAL STORAGE BATTERY CAR COMPANY

# BEACH CARS

# EDISON STORAGE BATTERIES

SILVER LAKE, NEW JERSEY

November 6, 1911=

Edison Storage Battery Company, Orange, N. J.

Attention Mr. Meadowcroft. Gentlemen:

This will introduce Mr. E. E. Segelbaum. Kindly show him the model of the horn which was worked out upstairs for use on our cars, and oblige

Yours truly,

B/W

#### SALES REPORT AS OF DECEMBER 5,1101.

 				*		SALES I	REPORT NO OF DE	CEMBER	5,1101.							
ST	Type	Cont.	Seating Capacity	Speed Capacity	Class of Service	Location	Operating on Road of	Timo ir	service Miles	Max'm Grado	Motors	Bat- tery	No.of	Price	Price of Battery	
Π							- Cars in Oper	ation -								
11 11	1		26 26 40 26 26 26	15 15 30 25 25 25	Urban Suburban Steam UrbanSteam Interurban	Wash.D.C. Montandon Long Island	28 & 29 St.Ry. Bal. & Wash.T.C Pennsy.R.R.Co. Long Island RR Suffolk Tr.Co.	15 7	40,000 11,000 45,000 15,000 18,000 15,000	3.5 5.5 3.0 1.8 4.8 4.8	22 44 22 22 22 24 22 22 22	A/8 A/6 A/6 A/6 A/6	100 110 200 115 110 110	\$ 5,700 5,000 10,000 6,000 5,500 6,000	\$2,600 2,200 4,000 2,300 2,200 2,200	
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1			26	15	Suburban	Charlotte	Charlotto Rapi Transit Co.	g S	6,000	5.0	2	A/6	100	6,250	2,000	
		1	45 32	35 30	Intorurban	Muskogee New Castle Dol.	Peoples El.Ry. N.C.& Del.City Tract. Co.	1/30	18,000	7,0	4	A/6 A/4	500	9,850	4,000 2,700	
5	In	pecti	on 4	15	Inspection	Arquipa, Poru.	Whili Mitrete			-	-	A/4	40	2,000	540	_
 'n	1	ŝ				İ	TOTAL -	l	190,000					\$71,550	\$26,740	-
 T	T					- Car	s in Course of	Const	ruotion -	-						
<b>=</b> 1			26	15	Urban	Concord	Salisbury & Sponcer Ry.C	lo.		6.8		A/6	100	6,250	2,000	
= 1			26 26 26 26	15 18 18 18	10 10 10 11	Charlotte Billings " Mont. Henderson-	Charlotte Rapi Billings Tract Hendorsonville	d Tran		5.0 2.5 2.5 3.0		A/6 A/6 A/6 A/6	100 110 110 100	6,250 6,700 6,700 6,500	2,000 2,200 2,200 2,000	
1			26 26	18 18	Suburban	Rock Hill	Carolina Tract	"		1.5		A/6 A/6 A/6	100	6,500 6,500	2,000	l
1 1 1	1		40 26 26 26	30 15 18 18	Interurban Urban	Kioto, Japan Gisborno " N.Z.	Ephrata & Lobs Hunicipal		.Ry.Co.	2.0 2,0 2.0		A/8	100 105 105	11,150 6,150 6,500 6,500	2,000 2,700 2,700 2,700	
= 1	1 1		40 26 40 40	35 18 30 30	Interurban	Melborno " Aus. Muskogeo	Pooples El. Ry	. Co.		7.0 7.0		A/6 A/6 A/6 A/6	200 200 200	12,000 6,500 12,500 12,500	4,000 2,200 4,000 4,000	
 1	+	<u> </u>	26	18	"	Haryland	Towson & Cocke	yev111	o El.Ry.C	· <del>-</del>	-	A/6	115	6,800	2,300	+
 11	4					See	TOTAL -				<del>-</del>		+	\$126,000	₹42,300	+-
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 -	15	+-	- TRV	-	- Document	Torre Torreit	TOTAL			00"	2	1		0213,000	\$61,220	
14	-	cotos	Cora ao	cond hand	and used			Operati	on - 1			ur l research		\$ 71,550	\$26,740	

# indicates cars second hand and used,
for six to twolve months before being resold.
= indicates repeat orders.

\$410,550 \$130,260

Total -

AS EVICENCE OF THE EXCELLENCE OF THESE CARS, MR. EDISON HAS GIVEN TO US THE RIGHT TO THE EXCLUSIVE USE OF HIS STORAGE BATTERY FOR TRACTION PURPOSES

# FEDERAL STORAGE BATTERY CAR COMPANY

## BEACH CARS

# EDISON STORAGE BATTERIES

EXPRESS :

PRESONT: TELEGRAPH: !

R. SILVER LAKE, N. J. HEWARK, NEW JERSET

AVENUE

NERAL OFFICE AND WORKS: FRANKLIN STREET, NEAR BELMONT AVENUE TELEPHONE, 5133 BRANCH BROOK

SILVER LAKE, NEW JERSEY December 22, 1911.

hr. Thomas A. Edison,

hr. Thomas A. Edison, Orange, N. J.

My dear Mr. Edison:

of the American Rallway Engineers Association on the Executive Consistee the letter which you write the President of the September 2 and 18th of dothor, the letter which you write the President of the Degineers can Street Rallway issues was read. It had been referred to the Engineering Association by the American Rallway Association; the minutes of this meeting contain the following:

Storage Battery Cara.—This subject was suggested by the American Association and as the committee thought there was a wide field for self-propelled cars as teckers and in ne development of new territory, a motion was made and extrict that the smbject of self-propelled cars be referred to the Raquipment Committee with instructions to prepare a resume of experiences of actual installations up to date. 12

Association who are not manufacturers to you to know that come mathers of this addressed and the second and the

Yours very truly,

HDEAN,

## Edison General File Series 1911. Battery, Storage - Foreign - General (E-11-20)

This folder contains correspondence and other documents relating to the commercial development of Edison's alkaline storage battery in countries other than the United States and Canada. Most of the letters concern administrative changes in the European battery business. Included are letters to the banking houses of J. P. Morgan & Co. in New York and Morgan. Haries & Co. in Paris in which Edison discusses his lack of confidence in longtime associate Sigmund Bergmann, head of the Deutsche Edison-Akkumulatoren-Co. in Berlin. Other letters concern the appointment of John F. Monnot, a friend of Miller Reese Hutchison, as agent for France and England. A few documents pertain to the use of batteries in French submarines. There is also a list of Edison's patents for storage batteries and the cost of working them in countries other than the United States and Canada. Among the correspondents are H. W. Balk, who solicited the market rights for Edison's storage batteries in Cuba and Ceylon; longtime Edison associate Samuel Insull; consulting engineer Horace F. Parshall; and Willis N. Stewart, an electric light agent in South America during the 1880s.

Approximately 70 percent of the documents have been selected. Among the items not selected are promotional material published by Berliner Electromobil-Fabrik, GmbH; unsolicited correspondence; and duplicates.

S13- Employed'

### HARRIS & SAMUELS,

in the United Kingdom for
The Rhineland Manufacturing Co.'s Ball Bearings.
Evouem's Patents: Motor & Aeroplane Accessories

10, DEAN STREET, OXFORD STREET,

Our ref. H/HS/2.

e: A.B.G. Sth Edition & Liebore.

Thomas A. Edison, Esq.,

range, N.J.

u. s. A

Dear Sir,

We have an enquiry for your Accumulators, and shall be glad to know whether you are represented in this country for them. If so, we shall be glad to have the name of the firm who is handling them; and if not, we should like to have full particulars from you, and should be pleased to know whether you are open to consider making arrangements with us to represent you for same; if so, you we shall be glad to receive particulars as to terms, etc.

Harris Samuel

Ber - Rig

# HARRIS & SAMUELS,

Managore and Sole Concessionaires in the United Kinydom for The Rhineland Manufacturing Co.'s Ball Bearing

arings.

10, DEAN STREET, OXFORD STREET, LONDON, W.7th. February.191

Telephone: GERRARD 8504. Telephone: Certage: "POSITIVELY, LONDON: Our ref. HØHS/-2-.

H. F. Miller, Esq., Secretary to:

A. Edison, Esq., O R A N G

au 1/18 | "

Dear Sir,

We are in receipt of your favour of the 30th.

We note that you are at present developing a trade in the United States, and later you will open a Factory in England. We trust you will bear us in mind if then we can be of service to you in placing same on the English market.

In the meantime, we should like to ask, until
the Patent Law in England forces you to manufacture it
over here, if we could not handle in this country for
you the Batteries you are making in the States. In
this way the trade could be worked up over here, and
the erection of the Factory in England could be left
over until the trade warranted it.

The reason that we wrote you on the matter in

From HARRIS & SAMUELS, LONDON.

Pate 7th, February, 1919r

the first place was on account of an enquiry we had from some Indian clients of ours.

Yours faithfully,

February 20, 1911.

Dear Mr. Edison.

I have received a letter from my friend Mr. Monnot, of Paris, whom I brought out to the Lab. for the purpose of negotiating with you for the privilege of naunifacturing or selling the Edison Battery in France. You will remember you decided you content to tell them these in the present stage of the patent stuataon.

He writes as follows, which I quote from his letter:

mais Franch was to and talked with the late manager of Bergmais and the tender of the series and as trying to push it. He
Edison Battery in Prance for some time and is trying to push it. He
Edison battery in Prance for some time and is trying to push it. He
the manager, sold a stationary outfit to Tiffany, atthe he does not
think the Edison cell as well adapted to such work as the readBergman has also sold some of the Baucessa as they were not
subsaries as the sold some of the Baucessa as they were not
an branch or such requirements. Bergman has not sold very many cells
in France, however. His principle sarket has been in Germany. He has
been making the old type battery, and two ground hand which he is
their reconfly tell me battery, and two ground hand which he is
been making the old type battery, and two ground hand which he is
been making the old type battery, and two ground hand which he is
been making the old type battery, and two ground hand which he is
been making the old type battery, and two ground hand which he is
been making to the sale of Edison sattery and went to see surge
man to find out how he is making out. I do not know it talked with
his, as he pranty, and would not entertain a proposition from me to
take the matter up in France, because of the patent situation. I
dannot such work pergana could not entertain a proposition from me to
take the matter up in France, because of the patent situation. I
demands to the patent situation of the situation of the second of the patent situation of the patent situation of the second of the

your interests, which I always stand ready to do. I would suggest, however, insamon as I am handling to Mary situation, that the however, insamon as I am handling to Mary situation, that the water be not middled up in mindle to Mary situation, that the water be not middled up in Middle to Mary situation, that the water be not middled up in Middle to Mary situation, that the standard of the middle to Mary situation in the situation of foreign Mary and State this when approached by representatives of Foreign Mary and State this when approached by representatives of Foreign Mary and State this when approached by representatives of Foreign Mary and Mustria sales, but had better let me handle the situation from this end.

LE KLAYON

# THE KLAXON CO., LTD. WARNING SIGNALS

JEM /ALK .

31, RUE DARU

name 28th. April. ...11.

TELEGRAPIC ADDRESS
TONNOM-PARIS

TELEPHONE 593-20

Mr. Miller Reese Hutchison, c/o. The Edison Storage Battery Co., ORANGE N.J.

#### My dear Hutch,

affirmed about the Edison bettery he toud on end in talking to met the day before a London broker who showed him a small propecture for making the money for introducing the Edison bettery in England. He stated that this business has bettery in England. He stated that this business has been brought to him by a men who had one to purchase from the Edison and that they we has for London and make a demonstration in view of form and a larger company for building them in England. By what if, Edison told us at the lest interview we had, and I leave it to your judged and the lest interview we had, and I leave it to your judged and the have time to investigate the matter before I left hondon but will get the name of the broker, which I forgot, and try to get the name of the may be not be present the burner of the man who had not have the to the man to he ways he has worked with Edison and introduced this business.

on Morgan, Barjes & C'. with the letter of introduction Mr.
Edison gave he last December 1. When letter of introduction Mr.
Edison gave he last December 1. Wedington to there uptl
was received the last letter of the Wedington Mr.
was received the last letter of the Wedington Mr.
and were particularly interested with ny call. In. Weddington has seen several times Mr. Edison and has been following the
development of his storage battery. They most fifth the weding the
what Bergman has done in Garmante and has been a few weeks in
with the the laboratories for studying the process for making
the chemicals for the bettery. They told me that they mannifactured these channels in Garmany although I understood from

ur. Heroid Ap, Mr. Edison that he was shipping same to them. very enthusiastic on the possibility of the new Mison bettery and his father has offered to give me a letter of introduction to him when I go to Berlin. They are certainly much interested in the battery for the French market and I went to them to show them what could be done in controlling went to them to show them what could be then in conveyable, the electric triaction in France. They have a lot shout this and understood perfectly my points and told me that they were ready to go into this business and had for years tried to get th from Mr. Edison, but that he always told them that he was not ready and to wait. They were very pleased to have my call and talk about the matter as they were thinking these of approaching Edison himself on this matter. I told their that Mr. Edison had allowed me to go shead on the selling and of it here but they told me that this would not do as the battery would have to be manufactured in France to be shie to get business for the city and suburban lines as well as Tox the Government, that they are convinced that there is enough the deverment, that they are convicted that we extract a simple market here to warrant menthecturing and they could be withing to organize a company to that effect on the plans I have out that to them, - should Wr. Edition agree to the earlier of the conditions either for a regulty or for an extract the the company. I am writing to the Edition a latter, which I enclose, leaving to you the care of talking the other points so as to make him understand the necessity for him to enter into an agreement for the French end of his business.

On enother hand, it will be necessary for the magely end of the business to have the battery manufactured in France as otherwise it would be impossible to get the French Government to take it up. Mr. Herold told me that the German Edison Battery Co. had furnished I battery for a French submarine but it was impossible for them to get another order. On another hand the duty in France, which is not prohibitive now, would be certainly raised by the French authorities as soon as the battery would be imported in large quantities and Mr. Herold and Mr. Waddington think that Mr. Edison would not be protected for going into the French market on a large scale of mannfacturing here. Although the storage battery may be the best thing for submarines the French Government will not buy it, except for a test, if not manufactured in France. I am convinced, and Mr. Herold is also, that there is quite an important business to be done here although Mr. Edison did not think so. Edison is coming over here, as he says, in July you ought to try to prepare him to take a decision in this matter while he is here if you cannot succeed in having him to do so before.

M.R. Hitchisons

Heroid told me tuch he would give me a letter of introduction to take it up with their English firm and the probably they would take it up also for that market, but I still you would impress on Wr. Edison that if he will authorize me to negotiate his business for France and England, I can do so to our mutual advertages.

Berlin friend saying that the Interior of the Steamen-Schuckert words as the plant that the Interior of the Steamen-Schuckert words are the June that the mirror was ready for shipment but them the test by the very stringent arrangement to be used these plants of the strong that the str

Awaiting your news, I remain with kind regards,

Yours sincerely,

V FIGURE

Letter for Mr. Edison.



# THE KLAXON CO., LTD. WARNING SIGNALS

JEN/ALD . 31, RUE DARU



PARIS, MATU MATE

TELEGRAPIC ADDRESS TONNOM-PARIS

TELEPHONE 593-20

We Thomas A. Bodespo

ORANGE TO

Dear Mr. Edison,

I just called body on Means, Morgan, Marjes. So, re your stoness bettery. Dr. Estima was not there but I was received in. Heroid and Mr. Majak supton, who had the prisenurs of seeing you special times in the past.

that they were were interested it your beginns and told me that they were very placements of the season of the law been that they were very placement of the season of the law of the that they were law of the law of the season of the law of the that the law of spent several weder in your laboratory on the chemical edd of your battery. He is were combinated for show your or that the

I told if. Hernd that you did not sprouse to manufacture in France, but he immediately should be that this would certainly be a great size of the would be impossible to some of the control of manufacture of manufacture of manufacture of manufacture of the franch Coverenance. On surchine hand if we says largesting the battery have on a large scale the Erend atthoristics would certainly raise the scutch days and main the pith on the implementation of the same of the control of the same of the sa

One of the most important uses of your new battery is for submarines; you will therefore see the nedessity of stating some settisfectory arrangement for the naminafoure here, as I see told by it. Heroid that the German company had tried to get

offers from the French Government for this purpose and only could subply a test bettery and are unsite the second order. It was necessary to see a second order. It was testing the rule of France cases over which appropriate in public, dity or government specialism to be of French amplicature.

I am esiting my friend, Mr. Entollison, to give you this letter and to influx you of other points short which I have mutician him. I have you still give your heat consideration to the above and let me know your elems in the matter.

When you come to Paris next July I will have everything exranged for you se you told me, if you will left me know exactly the Gate of your arrival before hend.

Amaiting the pleasure of seeing you again and hoping that you are in good health, I beg to remain,

Lonie spidereth

PRESIDENT.

50- Fronce

J. P. MORGAN & CO.
Wall St. comer Broad.
NewYork.

DIESKIL & CO.
Philadelphia.
MORGAN, GIRNYELL & CO.
London.
MORGAN, HARJES & CO.
Boyle.

51911911 51911911

New York May 6th,

//// 1.

Thomas A. Edison, Esq ., Llewellyn Park, Orange,

four of the Charles at

Dear Sir: -

eceipt of a letter from our Paris house,

Messrs. Morgan, Harjes & Co., in regard to the Edison Storage Battery.

They ask us to ascertain from you if, and under what conditions, you would entertain the exploitation of your patent in France. They are informed that you will be in Paris in July next but would be glad to have the matter talked over beforehand.

We shall be glad to see you upon this subject, should you be in town, or to hear from you what your views may be in the matter.

Yours very truly,

quecay

Ca de Albert Jon.

Mr. Dyer:-

I hand you herewith a his foreign storage to get the patents, together with the cost of maintaining the until their expiration in taxes. I have not put down in fotal cost of the workings, owing to the fact that the go tot work the patents in all countries at present.

I did had include the Canadian patents in this

list.

P. J. Thowas.

FDL-JS

FVE FOR FICH STORFCE BYLLESK FVE FOR FICH STORFCE BYLLESK Men Ayou

#### Fab. 5, 1901 (Claims) Storage Battery,

h. A reversible galvanic battery or accumulator containing an alkaliam slectrolyte and smploying in the make up of one of its aleatrodes and trained to be accounted to the control of the hydrated coding the contained in a closed recognization upon the contained the containing out of the containing of the containing of the containing out of the containing of the containing of the containing out of the containing of the cont A reversible galvanic battery or accumulator containing an alka-

reduced to the metallic state when opposed by a suitable electrode in an

reduced to the mental and a state of a communication of a control the samplement of finely divided electrolytically active iron or finely the samplement of finely divided of incl. a cons of the elements, divided electrolytically active order of iron, a cons of the elements, and a hydrated oxide of incl. and a control the communication of the control that is the other element, both and a hydrated oxide of interfactor.

divided desired or do of nickel or cobalt as the other stemmen, and the immersed in a make sine electrolyte compared in a make sine electrolyte compared in a make sine electrolyte desired in a reversible galvanic metallic electrode therefor, the expenses the matching of the special content of the second posed currace of which the second posed currace of which the second posed currace of which the second posed to the second currace of which the second posed in the form of a closed rough one walls provided with perforation charpening will propose the second posed in the second posed in the second posed posed posed rough the second posed 
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# Mechanical Construction, May 21, 1901 (Claims)

1. A reversible galvanio battery of the type employing an alkaline slectrolyte, whose negative electrode or oxidisable element is characterized by the employment of anydrous ferrous oxide which is reducible to the metallic state electrolytically.

reducible to the metallic state electrolytically.

2. An improved reversible galvanic battery employing an alkaline electrolyte and characterised by one use, in the makeup of its positive pole electrode, o'a depolarized by the use, in the makeup of the positive route of nickel, as dettinguished from the colloidal form of such oxide produced by the use in the makeup produced by the use in the produced by the use of the colloidal form of such oxide produced by the dettinguished from the colloidal form of such oxide as explained for bolding the active material of the electrodes, and characterised by the admixture with the active material of flakelike non-activized by the admixture with the source material of flakelike nonneutrinously used annuarture with the source material of lakealies non-active conducting material, such as micaceous graphite, the particules of which are larger in eise than the perforations in the recognities, the surface of such flakes being coated with the finely divisions the terial by pressing the two materials together smill platte sates and in such a manner that the size of the flakes shall not to any extent and in such a manner that the size of the faces shall be to any steel be diminished to snable them to pess through such perforations, and so relative proportion of the two materials being such that satisface and the satisface an

face of the conducting flakelike material.

4. An improved reversible galvanic battery employing an alkaline An improved reversible galvanic battery amploying an alkaline solution and characterized by the use of perforated receptacles for containing edited to the use of perforated receptacles for containing the containing the containing both of the containing by the containing the containing both of the containing the containing both of the containing both of the containing containing the containin

material. 5. An improved reversible galvanic battery having the general characteristice above recited and further characterized in that each characteristics above recited and further characterised in that each perforated receptuals is orimped around the edge of an appropriately shaped opening in a suitable supporting grid or plate, as set forth.

6. An improved reverse further characterized by the beforerecited characteristics of further characterized by the corrugating of the outer walls exactly recorded to the characterized of and thereby permit the use of thinner material.

7. On the characteristics and further characterized by making the rerecited characteristics and further characterized by making the rerecited characteristics and further characterized by making the re-

recited onarusteristics and further characteristic by making whe re-optable of two cups or sections, one having deeper sides than the other; so that when the sections are subjected to compression to oring them in position in the supporting grid or plate, the desper walls of the first section will be orimped over upon the bottom of the other section to look the section rigidaly together and to the grid or plate, section to look the section rigidaly together and to the grid or plate, as set forth, and each oup being formed from blanks out from a performance of the grid or plate of the grid or plate. ated metallic ribbon having imperforated margins, the eide edges of each oup being located outside of the perforations.

-	0	0.	Jan due	2	torge left	. /	marke
Country	volis		Charles and the				
Endand	62	1915			202,50		
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Belgine	64	1921					
Switzerland	65	1916			150.00		
State	66	1916					
henry	62	1916	129.00	-	773.00		
_ Ppain	7/4	1921	25.40	15.00			
Rustria	133	19.8	61.20	30.4			
Huncary	137	1916	65.00	30,00	432.00		
Jakan	18	19.7		50.0	120.00		
Japan	75	19/5	30.0	-	180.00		
unden	126	1916			199.80		W: 15
Sweden	145	19.0		30.	798.00	Electric	Containers Chine by

# S. B. - Metallio Magnesium Plate

#### Oct. 8, 1901, (Claime)

1. An electrical accumulator of the type employing a metal in which the discovering the paraterized by a surface or plate of metallic magnetium on which the discovered metal te plated during the obserging operation.

2. An electrical accumulator employing an alkaline zincate solution, a surface or plate of metallic magnetium upon which zinc ie plated in charging, and a depolarizer utilizing a mickel-oxygen or cobalt-oxygen compound.

oculing	dotio	Expire	Hersh San due	Zurking	Soral lafonty	Remarks
udand	27	1915	\$ 5750	Home	202.50	
Rauce	128	1916	21.00	3000	844.00	
Belgin	74	1921	2440	25.00	150.00	
466	80	1916	26.00	30,00	145.00	
weden.	81	1916	25,80	kme	125.00	
ustria_	99	1917	89.00	30.00	625.00	
ermany	140	1916	129.00	Zene	773.00	
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#### Complete Cell, Jan. 6, 1903 (Claims)

1. A receptacle for a storage battery, having horizontal corrugations not extending to the corners of the receptacle to strengthan the receptacle against compressing and expanding strains, substantially as set forth.

2. In a storage battery, the electrode plates mounted on in-culating bars having saw slots for receiving the electrode plates, substantially as set forth.

3. In a storage battery, the side separators having slots for receiving the electrode plates for properly spacing the latter, substantially as set forth.

4. The gastight insulating joint through which passes the conductor from the electrode plates, as shown in Figure 3, substantially

as set forth.

The perforated diaphragms in the cell above the solution for 5. effecting a separation of mechanically entrained globules from the gases generated when the charging is sufficient to cause the colution to froth or foam to cover the diaphragm with a film, subetantially as set forth.
6. The oheok-valve 49 or its equivalent for permitting a gas

preseure to be created in an otherwise sealed receptacle for etorage batteries and to automatically permit of a discharge of the gases and mechanically ontrained globules at such a high velocity as to overcome the surface tension of a liquid film to cause the globules to coalesce therewith and be thereby separated from the

scouling gases, substantially as set forth.

7. The gause surface 52 or its equivalent, through which the cecaping gases pass and by which exidation of the gases within the

cell ie overcome, substantially as set forth.

8. The deflector 53 for diffusing or attenuating the gases before their discharge through the gauze diaphragm. substantially as est forth.

The insulating separating sheets 37 between the electrodes with perforations arranged in lines between the masses of active

material, substantially as set forth. material, gousementantly as set forth.

10. Making the pockets or receptacles for containing the active
material with concaved walls, substantially as set forth.

11. Souring the mass or brights to factive material within one

of the sections of the top pockets or receptacles by a turned-over edge of the latter directly engaging the active material, substantially as set forth.

13. The crate or tray containing a plurality of storage batteries mechanically held therein and insulated from each other both at the mechanically need therein and insulated the documents of the top and bottom, substantially as set forth.

13. The insulating locks 66, as shown in Figure 11, for holding the cells in position within the orate or tray and for insulating them at their upper ends, substantially as set forth.

The multiple compressing diss, as shown in Figures 5 to 17 employing a layer of yielding non-compressible material like rubber between the press plunger and the independent diss for applying a uniform pressure to all dies without affecting the capacity of the dies to move independently of one another, substantially as set forth.

An oxidizable electrode on discharge for a storage battery, containing in its makeup electrolytically-active cobalt or oxide

convening in the maxemy electroly recently could be convenient to the thereof, substantially as est forth.

16. For addition to the lron, cobalt or other orditable material on discharge, in a storage battery using an alkaline electrolyte, a readily reducible metal, such as mercury or copper or silver, or a readily reducible metal, such as mercury or copper or silver, or a combination of mercury and copper and eliver, or of mercury and copper, or of mercury and silver, or of copper and silver, for the purpose of preserving slectrical contact between the active particles as well as to permit the electrode to sustain a high voltage through the whole period of discharge, substantially as est forth

#### (continued)

17. Locking the electrode plates of a storage battery within the enclosing receptacle to prevent the electrode plates from moving or sainting found unique, as and found the plate from moving or reducing iron oxide in a closed retort by hydrogen gas, after which the raduced, iron is permitted to cool while still surrounded by the gas to prevent the spontaneous exidation, followed by the introduction into the ratior of water to expel the gas and make the raduced the raduced and the state of water to expel the gas and make the raduced

iron non-pyrophoric.

ountry	oris.	Espira	Kerel Lan due	Zunting	Parachifon	Remarks
Belgin Belgin France Hale India	17.1	1912	4250		402,10	
Bleum	174	1923	20.00	>V: 2	810,00	
	/are	1918	21.00	300	147.00	
ELL	1/26	1918	21.00	30.00		
hadi-	/22	1017	30.00	_		
26-	146	10.0	10 00	15.00	403.00	
Spain Institution Japan	100	10.0	202 000	_	196.00	
O. J.	10.0	1010	24.00	.60.00	155.00	
new D. Well	18.00	10.5	_		100.	
new D. week	183	1710	20.00	-		Due 1914
Victoria	184	1970	40.00	20.00	ma an	
Hungary.	180	14:0	7 0.00		0.7,	
Sweden austria	161	10.0	174		169.20	During Care (Can claim)
O. Tara	1.00	1011	6120	30,9	735.50	" " (" " )
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Quetar	165	1921	31.60	30,00	873.20	Bening Con additor of Mercung & In Mercung - along the
Austrea Arresew Arresea	172	1918	12.40		160,00	the state of the s
Arredon	164	1918	1260	_	/	
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		(c	lain	18)	rufg of	Electrole licares action finely durined.
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Hungary	212	1918	104.00	18)	Traffor	Electroly livery action friely durined.
Hengary Germale Inches	212	1918	104.00	18)	993.50 993.50	Electroly livery action finely during
Hengary Germaly Arredent	212	1918	10400 17.60	30	993.50	Electroly way action friely devices.
Henry gar Gersmale Anedens	212	1918	104.00 17.60	30	169.20	Electric livery action finely duries.
Henryan German Arrichan	212	1918	104.00 17.60	30	72980- 993.50 993.50	Electroly livery action finely durant.
Glemgary German Arrichen	212	1918	104.00 17.60	30	72950 993.50 993.50	Electric livery action fixed, devices.
glesman Gersman Arrichen	212 215 235	1918	104.00 17.60	18)	15920 1993.50 169.20	blacked, livery, aution friety devolus.
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Hungar Gersmak Gredent	212	(C 1918 1918	104.00 17.60	(8)	15-97.50 993.50 169.20	Stacks of truey cartin fuch dunant
Hungard Ser Sinde Arresent	212	(C. 1918 1918 1918	laun 40.4. 104.00 17.60	30	15-97.50 993.50 169.20	Elecholy times Cartin finely durant
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Human German Griden	212 213 235	(C. 1918	Cacin 40.00 104.00 17.60	90	15-97.50 993.50 169.20	Shehal tiney Cartin field, directed
Henrigan Gertale Grieden	21.2 21.5 285	(C. 1918	lacin 40.00	18)	15-97.50 993.50 169.20	Steeling times action friends demand
Hemiser Driedend Driedend	212 217 217 255	(C. 1918	Cacin 140.00 100.00 17.60	30,	15-97.50 993.50 169.20	Thehalf truey cartin field, dented
German German	212 213 235	1918	lacin 140.00 104.00 17.66	30,	15-97.50 993.50 169.20	Shelney timey Cartin finely directed
Henry on	212 210 255	1918	104.00 104.00 17.60	(8)	15-97.50 993.50 169.20	Thehalf truey cartin field, dented
German German	212-215-7865	1918	140.00 100.00 17.66	(8)	15-97.50 993.50 169.20	Steeles Girey Cartin finely directed
Hum an a general and a general	212 217 265	19.8	100.00 100.00 17.60	(8)	15-97.50 993.50 169.20	Steeles truey cartin field, dented
Hemingang Germany Services	212-215-786	1918	laun 40,000 1000 17.60	(8)	15-97.50 993.50 169.20	Steeles Girey Cartin fiely directed
Hem yangang Gerbanaka prinsenda	2:12-2:25	(C) 1918	104.00 104.00 17.60	(8)	15-97.50 993.50 169.20	Steeles truey cartin field, dented
Heming y	212-215	(C) 1918 1918 1918	104.00 104.00 17.60	(8)	15-97.50 993.50 169.20	Shelas truy Catio fuel, dunas

# Corrugated Can, June 15, 1903 (Claime)

1. A metallic containing vessel for storage batteries, suitable protected against corrosive action of the electrody team designed to receive the electrode plates which are insulated from the vessel, characterized in that horizontal course and corrections of the vessel, by depth the vessel will obtain a set formed in the side of the vessel, by the vessel, by displacing the metal cannot be the property of the vessel by displacing the metal cannot continuously around the vessel, whereby a vessel is obtained of minimum weight and of great tength, to resist bulging and compressing strains, as set forth.

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# Storage Battery, Addition to Folio 126 (Claims)

arranged in receptuales or pookets with performed walls, characterized in that the active mass is enough the control of the co

# 2. (Claim 2 remains unchanged)

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Smeden	131	19.7	17.60		182.20	
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# Separating Mechanically Entrained Globulee, Jan. 6, 1903 (Claime)

- el. A storage battery employing an alkaline or acid characterized in that the gasee which are generated within the electrolyte and which acry mechanically entrained globules are caused to be projected, either within the ocil or outside of me acceptance of the projected, either within the ocil or outside of me the surface tension liquid film with such the entrained projected, either within the ocil or outside of me the surface tension liquid film with such restrict the mechanically entrained globules to coalesce with the film and thus become separated from the eccaping gases, substantially as and for the purposes est forth.
- 2. A storage bettery designed to permit of the performance of the operations recited in Claim 1, characterised in that a vent from an otherwise completely scaled receptacle is normally closed by a weighted valve, permitting a periodical discharge at high velocity of the gases and entrained globules into contact with a deposited liquid film, as and for the purposes set forth.
- 3. A ctorage hattery employing either an acid or alkaline electrolyte and oppropriate octive materials and wherein the generaction of the companies of the materials and wherein the generact permitted to ecopy from the receptacle through a game or equivalent cooling medium in a diffused, attenuated and non-explosive condition, substantially as and for the purposes set forth.
- 4. A storage bettery designed for the performance of the operation resited in Glaim 3, obstracterised in that an escape from a respective for the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of
- of the operations resided in Claim 1, characterized in that a performance for the operations resided in Claim 1, characterized in that a perforated disputs in the state of the characterized in that a perforate disputs in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized in the characterized i

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ı	Amederal	171	1918	17.60		169.20	
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# Concaved Pooket, Jan. 6, 1903 (Claime)

- 1. An electrode of the type wherein the active mass in the course in position within the openings of a long test accured in position within the openings of a late or grid, characterized in that each pooker, or recepture of a longitudinally concaved, so that the line of miniaus thickness of the active mass therein is substantially coincident with the central longitudinal axis thereof, as and for the purposes est forth.
- An electrode as recited in claim 1, characterized in that one of the sections of each pocket ie independently locked upon the contained briquette and ie in turn locked within the other section, as eand for the purposes set forth.
- recited in Claims 1 and 2 above, characterized in that the sectional pockets or receptacles are first subjected to the action of smooth concaving and crimping dies, and are subsequently subjected to the action of concern

Country Germany Questria Barcan	0 0000 156	Eyfrie 19.8	714 + 0 4 due 104,00	Wisking 	993.13 873.20	
Bredew	170	1918	17.60		169.20	The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa
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#### Multiple Compressing Dies, Jan. 5, 1903, (Claims)

1. Multiple compressing dies for impesing a uniform pressure on a series of articles which may vary in the mean characterist in the research of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control

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Germany			104.00		993,50	
Thursday	211	19.8	40.00	30.00	139.50	
austria	161	19.9	31.60	30,40	873,20	
Sweden	168	1918	17.60		169.20	
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## Cobalt Electrode, Jan. 6, 1903 (Claims)

every the construction of the oxidizable pole on discharge of a characterized in that the active oxidizable material consists of oxide of cobalt in a discharged condition, which is electrolytically reducible by a charging ourrent, as set forth.

2. A reversible galvanic battery employing an alkaline electrolyte and having an oxidiable extension of the consists of an electrolytically active compound of nickel, as set forth

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henne	155	1918	104.00		993.50	
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# Cleaning Metallic Surfaces, Dec. 10, 1904, (Claims)

1. The process herein described of cleaning metallic surfaces, preliminary to the application of a permanent coating of metal or other material thereon, said process consisting in opposing the articles as a cothode in an electrolytic bath, to an anode not attacked by electrolysis in the solution, whereby hydrogen gas will be developed on the surface or surfaces to be cleaned, to mechanically strip off impurities therefrom.

2. Carrying out the method source resited with a solution of cyanide of potassium, and described.

3. On the general process for cleaning metallic surfaces herein described.

4. An apparatus for carrying out the improved method as described in the foregoing specification and illustrated in the accompanying drawing.

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England 309	1918	37.10		440,00	
France 310		21.00		159.00	
Belgum 311	1974	1600	75,00	844.00	
Africa 312	19.9	21.00	30,00	192.40.	
Reveled 313	19.9			199.80	
Bermany 315	1919	78,00		11.67.50	
Revitzerland 316		17.40		199.80	
austria 317	1919	12.50		741.40	
Thungary 31/8	1919	31.00	30.00	189.00	
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#### Electroplating Apparatus, Dec. 10, 1904 (Claims)

In a continuous plating apparatus of the character described, the combination of a support, means for sustaining and moving a strip to be plated with respect to said support, a plating bath in which the strip is normally submerged and means for raising and lowering said support, substantially as set forth.

support, superannially as set lorun.

2. In a continuous plating apparatus of the character described,
the combination of a support, means for sustaining and moving the strip
to be plated with respect to said support, cleaning and plating and
in which the strip is normally submerged and through subject is passes
successively, and means for raising and lowering said support, sub-

stantially as set forth.

In a continuous plating apparatue of the character described, o. In a continuous plating apparatus of the character associated, the combination of a support, means for sustaining and moving the strip with respect to said support, a cleaning tank, a cold water tank and a plating tank in which the strip is normally subserged and through which it passes successively, and means for raising and lowering said support, substantially as set forth.

In a continuous plating apparatus of the character described, 4. In a continuous plating apparatus or the character described; the combination of a support, means for sustaining and soving the strip to be plated with respect to said support, a plating tank and hot mater tank, in which the strip is normally submerged and through which it passes successively, and means for raising and lowering said support, subtantially as set forth.

In a continuous plating apparatus of the character described, c. in a continuous planing appearants or the combination of a support, seems for neutaining and moving the strip relatively to the support, a cleaning tank in which the strip is normally submerged, means for raising and lovering the strip, and an occluding chamber carried by the support and normally submerged in the solution, substantially as set forth.

Substituting as set 107th.

6. In a continuous Pating apparatus of the character described,
the combination of a cold water tank, a support, means for sustaining
and moving the strip to be plated relatively to be appoint a spray
alove the tank for washing the strip, substantially as set forth.

above the tens now washing the strip, successionally as set lotted. 7. In a continuous plating apparatus of the character strip, the combination of a cold water tank, a support, means for successional moving the strip to be plated relatively to the combination of a cold water tank to the cold tank, and prays above the tank for washing the strip, before and after leaving same, substantially as set forth.

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5. In a continuous plating apparatus of the character described,
the combination of a support, means for sustaining and moving the strip
the combination of a support, means for sustaining and moving the strip
relatively to the support, a plating tank, a take-up rest to the
strip is applied, a let-off real, and means for soving the strip intermediate of the reals, substantially as set for the contract of the reals.

In a continuous plating apparatus of the character described, the combination of a support; xananax for xanataixing xand xan ing xibax airip wind cumulturation of a magnetification reason and magnetification relatively transfer and relative specific period by each at motor, a take-up reel operated by said motor, supporting pulleys carried by the beam and over which runs the strip to be plated and connections between said motor and one of said pulleys, substantially as set forth.

10. In a continuous plating apparatus of the character described, the combination of a support, means for sustaining and moving the strip the be plated with respect to the support, a but mater land in which the

oe placed with respect to the support, a not maker tank in which the strip is normally submerged and a spray for mashing the strip after leaving the hot water tank, substantially as set forth.

11. In a continuous plating apparatus of the character described, the combination of a support, means for sustaining and moving the strip to be plated with respect to the support, a plating bath in which the strip is submerged and through which it passes, zense for applying our-rent to a section of the strip after leaving the plating bath, whereby said section will be heated for the purpose of drying the same, and means for regulating the length of the heated section, substantially as set forth.

#### (continued)

In apparatue for continuouely drying a long moving etrip of metal in apparame sor continuously crying a long moving extip of metal in a continuous plating apparatue, the combination of who reliers over which the strip paeses, means for moving the strip where respect to said reliers, means for applying current to said reliers to include the section of the strip between them in the circuit ameans for adjusting the reliers in the respect to each other to regalate the length of the heated section, substantially as set forth.

13. In a continuous plating apparatue of the character described, the combination of a plating bath, a series of hangers immersed therein and over which the strip to be plated passes and insulating sude bare carried by said hangers for guiding the strip, substantially as eet forth.

14. In a continuous plating apparatue of the character described, the combination of a support, a bracket carried by the support, an idler mounted on eadit bracket and over which the strip to be plated passes and removable contact brushes carried by the support and making contact with the strip on each side of the idler, substantially as set forth.

In a continuous plating apparatus, the combination of a eustaining beam, a plating bath, means for supporting the strip to be plated with respect to the beam, a take up real to which the strip is applied, a motor, and frictional connections between the motor and said take-up real, substantially as set forth.

vane-up res, succetantary as set forth.

16. In a continuous plating apparatus, the combination of a sustaining beam, a plating bath, means for supporting the strip to be plated with respect to the beam, a take-up res! to which the ctrip is applied, a motor, and adjustable frictional connections between the motor and said take up resl, substantially as set forth.

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#### Storage Battery, Dec. 10, 1904 (Claime)

A receptacle for storage batteries provided with welded eeams, whereby a practically homogeneous structure is obtained.

3. A receptacle as recited in Claim 1, whose sides are formed with depreceed panels, so that any bulging therein will not extend substantially beyond the line of the side edgee.

A battery employing an alkaline electrolyte and inecluble active materiale, provided with a valve by means of which mechanically entrained globules are separated from the securing gases, each valve by being formed preferably of glass and made hollow, so as to flat; where by the valve will remain open eo long as any liquid may remain in the

valve easing.
4. In batteriee of the character herein described the provision of the valve like cover on the valve casing for excluding duet and dirt, and at the eame time permitting gas to escape therefrom, as

dsecribed. In batterise of the character herein described the employment of biemuth hydroxide as an addition to nickel hydroxide whereby the capacity of the depolarizing mass will be increased.

ry or an espolarizing mass will be increased.

S. A storage battery employing an alkaline electrolyte, positive electrodes containing nickel hydroxide and negative electrodes containing finely divided iron or an oxygen compound of iron, said electrodes being formed of perforated pookste, all of subtantially the same capacity and the nickel electrodes being arranged in path which is also expected in the containing and the nickel electrodes being arranged in path who that of iron, nickel employed will be each attacked the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the containing the conta

esparators for epaoing the adjacent positive and negative electrodes, formed by outting sections from a layer of insulating material.

8. Supporting one or more storage batteries in a crate or tray, by engaging insulated pluge carried by the orate or tray with integral beases formed on the dides of the batteries, as set forth.

9. The special treatment of the depolarizing mass and preferably the negative mase, also, of a storage batter; employing an alkalis sleotrolyte, consisting in connecting the electrode or slectroder cathodes opposed to an incoluble anode and in passing a alicelary consisting the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the storage of the st oursent between the same, that attacks and an an passage attacks. The current between the same, that attacks are the current street whereby heat will be developed and bydrogen gase translated in that attacks are the current same or masses to drive out insulate impurities of the within the active masse or masses to drive out insulate. therefrom into the electrolyte which can then be poured off, as de-

scribed.

10. The improved storage batteries herein described, and as shown in the accommanying drawings.

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# Electrode Biamuth and Nickel, Dec. 10, 1904 (Claim)

Depolarizing or positive mass for an alkaline storage battery, employing as the active material, an oxygon compound of nickel, mixed with a flake-like inert conducting saterial, such as flake graphite, or other sade of the proper conducting capacity, characterized in that a made proper conducting capacity characterized in that a meal proportion of blemath hydroxide added to the active mass either simultaneously with the precipitation of the nickel compound or subsequent to the production thereof, as and for the purposes set forth.

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Sweden	332	1919	21.00		192.00	
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## Storage Battery Carrier, Dec. 10, 1904 (Claims)

A support for one or more storage batteries, having a tray or crate in which the batteries are received and provided with ends, substantially horizontal top sember from which they are insulated, observed that the substantial of the batteries is provided on its side face with a bose or projection with which engages a recessed insulating plug carried by the corresponding side sembers of the crate of the view of the plug articled by the corresponding side sembers of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the crate of the c

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## Gas Separators, Dec. 10, 1904 (Claims)

1. A gas separator for storage batteries of the type in which separating valve is employed, adapted to seal the battery receptuals and pormit a gas pressure to develop therein, which pressure is suddenly released by the opening of the valve to cause the scanning gas to be projected against a liquid file, to thereby separate entrained iquid globules therefrom, characterized in that the valve is of such a construction as to fit on, in the solution, which may accumulate in the valve casing, as and for the purposes set forth

2. A gas separator for storage batteries as set forth in claim 1, and as a supplement or addition thereto, the valve-like cover for the casing, having a limited movement adapted to normally close the valve smaing to exclude foreign matter, but to be opened by the gas pressure within the casing, as and for the purposes

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## Procese of Treating Alkaline Batteriee, Dec. 10, 1904 (Claime)

- employing a depolarizing or positive mass and of a nickel ovygen compound, and application of positive mass and of a nickel ovygen compound. The application of the positive mass and of a nickel ovygen compound that more interesting the positive mass along a positive of the positive mass along are opposed in an alkaline solution to a suitable smode and subjected to a reverse charge shereby the solution will be heated and hydrogen gas will be developed in the active mass or masses to set for the order of the subject of the positive of the solution of the solution, as
- 2. In carrying out the method recited in claim 1, the utilization of the battery receptaclescas the anode and enclosing the same with a layer of acebectoe, or similar material to reduce the discipation of heat, as set forth.

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# Storage Battery, Dec. 10, 1904 (Claime)

pounds of iron and nickel as the active materials, carried in small perforated pocksts or receptacles, made of sheet materials and in an alkaline colution, the oubloal capacity of all the process colution, the oubloal capacity of the column colution, the oubloal capacity of the column colution is small column to the column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column column

2. A storage battery of the type recited in claim 1, characterized in that the esparatore between the iron and nickel pockets are diamond shaped in crose section, by elicing etripe from a cheet of insulating material, as set forth.

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## Cans and Receptacles, Dac. 10, 1904 (Claims)

1. A sheet metal receptacle for storage matteries, characteries in that the joint between the body of the receptacle and the top thereof, and preferably also have for the receptacle and the make-up of the septacle, and the second in the make-up of the septacle, thereby each of the receptacle in the second in the second actions, thereby each joint will not be affected by the solution.

 A storage battery receptable having welded joints as est forth in Claim 1, characterized in that the side faces are each formed with a depressed panel, as and for the purposes set forth.

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## Electrode, Jan. 25, 1906, (Claime)

- Nickel-oxygen combinations and additions of higher condurively containing electrode for accumulators with alkaline electrolyte, characterized by this that the active exterial high is highly compressed, but provided with fine channels, is included in tubes with perforated walls.
- 2. Process for manufacturing electrodes in accordance with Online 1, churches and by this that the souter meas which in known announce of the conductivity and on the other hand for producing sufficient porceity with a substance to be washed out later on, for instance, glucose or molacese, is etumped into tube-like perforated receptacles.

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## Division Folio 413 (Claims)

1. Process of manufacturing metal flakes adapted to be admixed to electrode masses, sepsically process of manufacturing flakes of cobait or of alloys of cobait and nickel, characterized by this that the flake-metal to electrolytically precipitated and thereafter separated to the athode, carrying it by treating with a suitable expirate the cathode, carrying it by treating with a suitable expiration the cathode forming the carrier for the electrolytical excipitation being provided for this purpose with a metallic coating which is soluble in the bath used for the separation of the flake-metal.

2. Process in accordance with Claim 1, characterized by this that the cobalt-flakes after breaking up to suitable size are subjected to high heat in a hydrogen atmosphere.

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## Elsctrode, Jan. 25, 1906 (Claims)

An slsotrode element for a storage battery employing an alkalins slectrolyts, comprising a tubular perforated non-deformable pockst containing a highly compressed mass of active material, preferably convening a nighty compressed mass of active material, presently shall have higher hard with metallic conducting falses, the pressure applied being sufficient to crush or deform the active particles so to enormously increase the area of contact of the same with the conducting flakes, and the degree of consolidation of the mass being sufficient to prevent relative shifting of the active particles and conducting flakes in use, as herein set forth.

2. The combination with an electrode element as claimed in Claim

l, of the cups or diaphragmsherein described for engaging the ends of the compressed active mass to maintain the pressure thereon. An elsotrode element as claimed in Claim 1 in which is produced within the active mass a net work of circulating channels by applying "simil the source mass a net work of circulating channels by applying to the active particles a sticky material, such as glucose or molasses by which the conducting flakes are caused to adhere to the particles, and resort the sticky material after the consolidating pressure has been applied to the mass, as set forth.

4. Applying an snormous tamping pressure to the active material by introducing the active material in very small increments within tubular non-deformable pockets and permitting a weighted plunger to fall one or more times upon each increment, as set forth.

5. The strengthening rings engaging the tubular non-deformable pockets and maintained in position by reason of the slight expansion of the pockets, due to the application of the consolitating pressure, as set 707th.

6. In an electrode element as claimed in Claim 1, the employment of flakes of cobalt or cobalt-nickel alloy in admixture with the active

The improved electrode for storage batteries herein described the second miring drawing

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#### Making Metallio Films or Flakes, Jan. 35, 1908 (Claims)

tih tine process herein described of making schallt files for use with title the process herein described by the files of the first deposition in an analysis of the file of a soluble metal; preferably sine, then in depositing on such file, a file of the desired metal, preferably cobalt or obsit-mickel alloy, and finally, in dis-solving the first deposited files so as to free the permanent file, as herein set forth.

neres net forth.

3. The supplementary process herein described, consisting in

3. The supplementary process herein described, consisting in

Chain and supplementary them to an annealing temperature in a hydrogen and

Chain and herein set forth.

5. The process for making metallic files for use with active mater
inle in alkalling etorage batteries as set forth and described in the fore-

going specification.

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ľ	Euglans	389	1920	3250		472.10	
	Flance	392	1921	21.00	3000	210.00	
L	Belguin	399	1926	14,00	30,04	420.00	
L	dollar	402	1921	1600	30.4	250.00	
F	Smeden	493	1921	17.40		217.00	
1	German	434	1921	65.00		1227.00	and the second second second second
1	Austria	03/	192	1840	30.00	951.40	
	Themcare	Har	1920	27.00	3000	622.40	
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## Electrode, Jan. 25, 1906 (Claims)

An active mass for storage batteries having an alkaline electrolyte, the active particles of which are intimately associated with flakes, scales, files or foils of metallic cobait, or cobalt-nickel alloy, as set forth.

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England	386		37.10		505.00	
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#### Electrode, Jan. 25, 1906, (Claims)

 An active mass for storage batteries, employing alkaline electro-lytes, said active mass comprising relatively large particles of an elec-trolytically active material much as mickel hydroxide, said particles being trolytholity actives material suon as more squrekine, said particles while conted with scales, fishes or foils of conducting material, and the whole being compressed so that the conducting flakes will present a net-work of conductors extending in all directions through the mace, as set forth.

3. The process herein described of coating relatively large particles 2. The process herein described of coating relatively large particles of nickel hydraxide or other notive material, with scales, flakes or folle of a conducting material, such as graphite, cobalt, nickel or orbalt-nickel alloy, which consists in first intimately associating a stilly material, such as molasses with the active particles so as to a consisting a suitable proportion of the conducting particles or of the conducting flakes, scales or folls, and in continuing the mixing continuing the conducting flakes, scales or folls are caused to adhere to the exposed surfaces of practically all the active particles, as set forth within the containing particle, as set for the containing particle, as set for the containing particle described and claimed for making active masses for storage batteries using alkaline electrolytes, as set forth.

for storage batteries using alkaline electrolytes, as set forth.

i	Country	Price	Expire	Heyx	lookus	Prose bef expirms	Remark.
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	Sheeren	394	1921	12.60	_	217.00	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s
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## Edison-Ayleworth, Electrode, Jan. 25, 1906 (Claims)

In etorage batteriee employing an alkaline electrolyte, an electrode element therefor, comprising a perforated non-deformable holder, containing a compressed mass of an active material consisting of nickel

containing a compressed mass of an active material consisting of nickel bydroxide, intimately associated with conducting flakes or scales, formed of cobalt or cobalt-nickel alloy, as herein set forth.

3. An electrode for storage betteries employing an alkaline electrolyte and comprising a cheet metal grid or support, having one or more pointing therein, within with one consists of a perforated non-deformable control of the compression of the control of the compression of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contr Caused and latership as the guarant source of the probability of the laters of ends, and oontaining under pressure an active material, such as nickel hydroxide, intimately mixed with conducting faktes or scales preferably of cobalt-nickel alloy, as set forth. An electrode element made of thin eheet iron or nickel,

plated on both sides, of tubular form, having overlapping edges and suitable perforated, the ende being closed by compressing and folding, substantially as herein shown and described.

4. A storage battery electrode substantially as herein set forth and shown in the accompanying drawings.

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# Tube Filling and Tamping Machine, Jan. 25, 1906. (Claims)

1. A tube filling and samping machine, comprising (1) a support for signify sustaining a parally of tubes side by side, (2) a suitable for signify sustaining a parally of tubes side by side, (2) a suitable representation of the material to be tamped therein, and (3) a series of weighted tamping plungers corresponding to and co-operating with the tubes, adapted to be automatically elevated a pre-determined to as to drop and thereby give to earlier the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of the series of

set forth.
4. The improved tube filling and tamping machine substantially as described herein and illustrated in the accompanying drawings.

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Country	Focis	Exfice	Hey!	Working	Copación Espe	
Empland	390	1920	3210		542.00	
France	398	1921	71,00	30.00	210.00	
Унист	409	1921	27.00	30.00	616.00	
Austria	411	1973		30,00		
Germany	414	1921	65.00		1217.00	
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No. 16,701

Metallic Films and Flakes, July 24, 1906 (Claime)

The procees of making films or flakee of cobalt or cobaltnickl alloy, which consists in depositing copper on a cuitable onthode, in then depositing copper on a cuitable onthode, in then depositing on the copper fine a film of cobait or cobait-nickel alloy, and in finally separating the copper from the obbait or obbait-nickel sither by direct treatment in a solution of cyanide of potageium nickel sither by direct treatment in a solution of cyanide of potageium nicket studer by direct vreatment in a southle copper salt, which is of yifret converting the copper into a soluble copper salt, which is discoved in a solvent thersof, as herein set forth.

2. The process of making films or flakes of cobalt or cobalt.

nickel alloy, which consists in shortoplating on a suitable cathode, alternating films of metallic copper and cobalt or cobalt-nickel, whereby a composite eheet will be obtained which when removed from the cathode will concist of alternating layers of coalt or coalt-nicksl, esparated by files ofmetallic copper, the metallic copper being subsequently dissolved, so as to free the cobalt or cobalt-nicksl, as

herein set forth.

3. The process of making flakes of cobalt or cobalt-nicksl al- The process of making lakes on coosity or coosity forth in loy, which consists in first producing a composite cheet, as set forth in Claim 3, in then cutting the same up into equares of the desired size and shape, and in finally treating the same either directly or indirectly with a very strong solution of cyanide of potassium, as set forth.

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## Lithium in Electrolyte, Jan. 7, 1908 (Claims)

The employment of lithium bydroxide in connection with alkaline electrolytes for use with storage batterles, preferably of the Edison styp, in which the depolarizing electrode makes use of an oxygon compound of nickel, whereby the capacity of the battery will be increased and the time during which the capacity may be maintained will be prolonged, as herein set forth.

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## Metallic Films or Flakes, July 20, 1908, (Claims)

1. Nickel, cobalt or other incoluble metallic films for admixture with the active material of storage batteries, having minutaly roughands or nature surfaces, substantially as and for the purpose est forth.

2. The process of treating insoluble metallic films for with the active material of ctorage but traines that is the films to a surface oxidation, man the films to a surface oxidation, and active the material contact of the metallic ctats, substantially as and for the purposes

set forth.

3. The process of treating insoluble metallic films claimed in Claim 2 in which hydrogen in the presence of heat is employed to reduce the oxide to the metallic state, substantially as est forth.

4. The process of treating insoluble metallic films as claimed in Claim 2 in combination with a final process for removing any metallic impurity present in the reduced surface, substantially as and for the purposes set forth.

5. The process of treating insoluble metallic films as claimed in Claim 4 in which a dilute acid is smployed to remove the metallic impurities present, substantially as and for the purposes set forth.

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May 8, 1911.

Mr. J. F. Monnot, 31 Rue Daru, Paris, France.

Dear Ferri:

I have your lettors of the 28th, addressed to Mr. Edison and myself.

I discussed the matter thoroughly with Er. Edison after his having read both letters.

He wishes me to state that he has not authorized anyone to raise any money for the exploitation or manufacture of his Battery in England, and that he would not consider such a proposition at the precent time.

He class cays he will not consider the manufacture of the atteries in France until the demand for them in that country warrants it. He sexportences in onterprises in France have never proved a remunerative. In fact, he has lost a good deal of money in that country, dating back to the time of the incandescont lamp. He says that if you can build up a business there such as will much prefers construction of a factory, he will consider it; but he will much prefers for you to go sheed on the predent besis and see what you can do.

the French government will purchase batteries for submarines supplered they can get them, when it has been thoroughly demonstrated as the matter of the submarines anywhere such as the submarine supplered they are to the thoroughly demonstrated be a marter of expeditions of the control of the government to do so, in ormatic of expeditions of area beinds in this field of navel development. If they do not do so, the amount of business we shall miss from France would not out very much of a figure, as all the rest of the governments are very eager to get the batteries, and will take up the entire output of this factory for some time. If the government same as ample bettery instable the present as many to the control of the government wants a sample bettery instable they get a net. I am quite willing to pay for it. I at tent will open their eyes and change the supple of a affairs very much, as far as the necessity of manufacturing in France is concerned.

In discussing the matter as to whether the Batteries will be manufactured in France or not, you can say to the government offi-

Mr. J. F. Monnot.

cials that whom the demand for Battories in France warrants the construction of a factory, such a factory will be put up, and if they do not wish to help the cause along by using the Battories meanwhile, it counts be helpede

So please say to Hessru. Horgan, Hodger & Co., that when the time comes for the comstruction of such a factory we shall not forget them or you; but we both think it better to letthe matter remain statu quo for the present. express his supreciation of your efforts, and to say further the will advice as to when he expects that make the court that the surrangements for the sutomobile,

eto., oan be made.

Yours sincerely,

Personal Representative of Thomas A. Edison in Neval Affairs.

URH/JTB

Bat my lond H. F. Pairhall D. L. M. Intle

/N.P. Yaixhall,D.Sc.M.Sw Consulting Engineer

TELEGRAMS: "PARSHALITE, LONGON." TELEPHONE:- LONDON WALL 301. · Salisbury House, Lendon Will. · London, E.O.

May 15th 1911.

T. A. Edison, Esq., Orange,

Orange, New Jersey, U.S.A.

My doar Sir,

I have not had any correspondence with you regarding the battery for many months. When Insull was over here he spoke very encouvagingly of the results he was obtaining in Chicago and sent me on a series of special reports which clearly indicated that you had made very substantial progress.

Some friends of mine, viz., Mr. Edward Manville,

who is Chairman of the English Daimler Company, which is far and away the strongest and biggest motor company in Great Eritain, and which is in a very strong position financially and otherwise, and Mr. Porcy Martin, the Managiag Director, feel strongly that there is a good future for your storage battery in this country, particularly in connection with haulage work, and in connection with a mixed system, viz., petrol electric vohicles. This class of vehicle they think will come into general use in the bus traffic.

I wrote you many months ago that the petrol bus was far from being a success. A new line of vehicles has, however, superseded the old ones and it is said on good authority that the new vehicles can be worked and maintained under 8d per mile run. It is claimed for the petrol electric vehicle (which is a petrol engine driving a dyname clutch, which under dertain conditions pumps into the storage battery and during starting takes current from the storage battery) that this outfit is materially lighter than the ordinary petrol vehicle and can give a much higher rate of acceleration.

If Mesors. Martin and Manville take hold of the battery for this country, there would be every chance of success, since they are both practical engineers and thoroughly understand the manufacturing and automobile business.

In connection with the Morgans and Sir Ernest Causel
I felt some reticence since it was not apparent what form of
working they would be able to make that would ensure the proper
manufacturing and sale of the battery. In the case of the
Dainler Company, I would have no hesitation since they are
already in the business and know perfectly well what they are
doing. In a recent conversation, Mr. Manville said he thought
Mr. Martin and he might visit America with a view to discussing

May 15th 1911.

T. A. Edis on, Esq.

the situation generally with you and making some working arrangement.

Strangely enough, the man Stewart, who was one of Dick's satellites, represented to them that he was your accredited agent in this country. I had no particular difficult in clearing up this matter, since 7 have known Mr. Manville and Mr. Martin for the best part of twenty years.

Certain friends of mine here in London are very big users of commercial vehicles and for a cencera like the Daimler Company to put these vehicles on the market I think there would be every chance of satisfactory results. 50 confident am I that I am quite prepared to say that I would give as much time as is necessary to put the business on the hast possible footing.

I believe, under our original arrangement, I wan to be entitled to 10% of the profits. This arrangement, however, was made so long ago that you might whan to reconsider it. In any case, however, I think whatever deal you make should provide that I should receive some substantial rotation as your representative here in England, that is to say, if you elect to make a doal with the Daimler Company, either to make a doal with the Daimler Company, either to

Trusting this will find you well,

T. A. Edison, Esq. . . 4 - Yay 15th 1911.

I remain,

Marshall

CM4429,1911]

Herman Harges Par

Bergman has made botch german Co
went ahead eigainst my advise making
old cells, used up his capital, cannot
go ahead wainto to sell out am doing
fune insures here employ Thousand wan
for behind orders, new cells opening up
new field maxing great expansion
Elealnaty a new epoch suggest
Stevens of Morgan from come over
westigale with even of your Taking
adventage of this against

Box - France

23 Wall Street. NewYork

May 29, 1911.

MAY 31 1911

Dear Mr. Edison:- Since you left here we have cabled Morgan, Harjes

& Co., as follows:

"Thomas A. Edison requests us to cable you as follows-Promised to let you know when ready to negotiate Fronch rights for my storage battery. Am ready now. Battery great success and pens new field in electrical expansion. Thousand men no employed in making batteries here and way behind indexs. If interested cable me. Bergman hae made beten of it in Germany and wants to sell. Great opportunity to combine French and German rights."

This for your file.

Very truly yours

Mr. Thomas A. Edison, Lakeside Ave., Orange, N. J. ducino

13 5- France

J. P. MORGAN & CO. Wall 5teorner Broad. DREXEL & CO. MORGAN, GRENFELL & CO.

Thomas A. Edison, Esq., Orange, N. J. JUN 2- 1911

Dear Sir.

We are in receipt of a cable from Messrs. Morgan, Harjes & Company, Paris, asking us to advise them regarding the royalty of sixty cents (\$0.60), as to whether it is per battery or what.

We shall be pleased to have you give us the above information so that we may communicate same to Messrs. Morgan, Harjes & Company as requested.

Yours very truly,

Royalty Sixty cents for Each
White cell, automobile anys
Lella proportionals There

May I trouble you for a " little information aneut secondary cell? to and a reacherge of 4 writes continuously for 12 hours? @ What would be the weight of such O what would be the cost of the cell in lots of 1000? @ What would be the probable life of the all in constant use @ Would your company supply the writer with a sample sell of above

output and at what price? I am engaged on a problem requiring an accumulator of excellent mechanical and electrical reliability, and I believe that your design would prove of great help in meeting the requirements. The courtesy of an early riply would he much appreciated by yours faithfully, Raymond. J. Mitchell. Thomas A. Edwar, Ergr.; Orange, New Tersey,

V.S.A.

mr. Porter of J. F. morgan Phoned that to is reported from Paris that you have given up your European sights Battery for Traction Raily- Oto Beach and for Aubmarine purposes to mother party what rights havings accorded mount for the sale of your bottery for the purposes -ma Porter would like

JP Morgany Co Have not parted with any rights my agent is selling outmonine European governments. Beach to no righto. Monet is simply and if he did saliofactory Gues



0 NV N 70

JUL 21 1911

London July 21-1911 Edison ,

Orange MJ

Responsible parties here request me learn whether stowart authorized by you form syndicate exploit your english battery business

I have no personal or financial interest in scheme cable reply/nyde park hotel has balling twenty ninth lustrania

as no 958courealin

directly or indirectly with me directly or indirectly with me World not have any dealings with

ingulry respecting this message can be extended to without the production of finis paper. Aspectitions of depters unjoin about he company's efficus, and not by DIRECT opplication to the conder.

Ed-2 mendo

B.W. GONIN & CP.
TELEGRAPHIC ADDRESS.
"ONINATE"LONDON.
TELEPHONE HIT
SSTB LONDON WALL.
COOSE:
WESTERN UNION.

57, MOORGATE STREET,
LONDON E. STATE 2191 3

Dear Mr.Edison,

While in Berlin recently, Mr. Bergmann intogmed methat you expect to visit this side next month.

Mr.Insull, who has just called, confirms this and adds that you may make a motor tour of Spain.

In case this is true, if my knowledge of the language and country can be of any service to you, I shall be glad to act as your Courier without pay.

An old friend of mine, Wr. Webrge Cawstor, closely identified with the Rothechilds and the German-Banks who finance Bergmann, has some interesting proposale-regarding an enormous development in the battery business, which he would like to put before you. He has, for years been an ardent admirer of your genius and achievements, and as he is a most forceful and interesting presonality, one of the men who hint, and set, it might interest you to meet him. If you will so as, limitly advise me as above.

Mr.Dickson seka se to say that you may command his services in any way desired while you are hard.

Wishing you a pleasant woyage, I am,

Yours Truly,

Thomas A. Edison Esq. Orange, New Jersey, U.S.A. ner stowed

B. W. GONIN & C?,
TELEGRAPHIC ACCREE
"OMINATE"LONGON.
TELEPHONE STI
3318 LONGON WALL.
COGES
WESTERN UNION.

57. MOORGATE STREET,

LONDON, August 4th. 1911.

Dear Mr.Edison,

I have been asked by Mr.Bergmann to submit toyou some facts regarding an advance which can be made in the working of your new battery, and enclose herewith a brief statement, which it will be worth your while to peruse.

When in New York last Winter, Mr. Beach gave me a written undertaking, confirmed by a subsequent letter, in which he offored me batteries for a London omnibus service.

He subsequently gave me prices, conditions and guarantees on which he would furnish said batteries.

I understand, however, that he either acted without authority from you or is in some way prevented from carrying out his undertaking.

I should like to show you this correspondence, as the matter has caused me serious loss in reputation and pocket.

We have the money ready for this work, and can

do it with the new motor at less cost than anyone else.

Rergmann wishes to discuss the question with

you before you make any decision in order to avoid, if possible, the closing of his works.

		No (2).	DATE	ugust4th	1911.
LETTER TO	), onki				

As I am perfectly satisfied that you wishathis matter, as all others, to do what is fair, I shell be extremely obliged if you will give me an interview, so that you may know what has been done here and in New York.

I may say that we are quite ready to show you by practical demonstration that the Lundell motor will save you from 25% to 50% in cost of battery for any given service.

My associates here are the financial agents of the Rothschilds, and will provide any required sum for the omnibus or other business.

Yours truly, W.EN. Stewart.

Thomas A. Edison Esq.

LONDON.

B.W. GON N & C?

57, MOORGATE STREET,

LONDON, 16th. August 1911.

S. Bergmann, Esq., Bergmann Electrical Works, 23/32 Oudenarderst, Berlin, N. Germany.

Dear Sir.

I enclose a letter for Mr. Edison, which kindly read and hand to him, if you think best.

If he wants to give my friends the exclusive use of the battery for London omnibuses, we will give you the exclusive manufacture of the new Landell motor for Germany and Austria very small royalty, thus enabling you to greatly reduce the price . of your vehicles.

If you want to sell your works, and I hope this will not be necessary, I have a purchaser provided he is allowed to sell batteries in England.

We shall be prepared to send you a car, fitted with the Lundell motor, for test, if any arrangement regarding the omnibus or other business can be made with Mr. Edison.

I feel that my work in the direction of vehicle improvement deserves some recognition, and that it will prove of advantage to all If I am wanted in Berlin, please wire as above, and of us.

oblige.

Yours truly

b.N. Stewart

My sud

(V)

B. W. GONIN & CO.

TELIORAPHIC ADDRESS:
"OMINATE", LONDON.

TELIPROPE MII

3318 LONDON WALL.

CODES:
WEDTERN UNION.

57, MOORGATE STREET,

LONDON, 16th. August 1911.

Thomas A. Edison, Esq., C/o S. Bergmann, Esq., Berlin. Mount

Dear Mr. Edison:-

When in New York last Winter Mr. Beach informed me that he had the sole right to use your battery for traction purposes, and gave me written permission to undertake the omnibus business in London, quoting prices and naming full guarantees.

Mr. Bergmann has oopies of the correspondence and will show you the same.

I have since learned that you have cabled here stating that I had no authority to do this business.

On my return, I found capital for introducing 1,000 cmmi buses at a cost of six million dollars, and have suggested to
Mr. Bergmann that he get permission from you to furnish these batteries, thus enabling him to keep his works in paying operation.
At the same time, I have obtained control of the new Lundell Motor,
which has been fully tested and found to revolutionize the whole
system of battery working. The use of this motor will save the sum
of £75,000 per annum on the operation of 1,000 cmmibuses, even if the
nett gain in efficiency is only 10% in place of the 25 % already
realized.

LETTER TO Thomas A. Edison Esq. , SHEET No. 2. DATE 16th. August 1911.

In this situation, is it not possible for us to come to some arrangement regarding the omnibus or other business which will recoup myself and friends for our heavy outlay, and at the same time give you and Bergmann the use of this new motor and other improvements?

We are willing to fully demonstrate the advantages of this motor on a car, in New York or Berlin, subject to a previous arrangement as to business matters if we justify our claims.

To prove the economy, we use an Edison electrolytic meter, which is the only apparatus which can be used on a car to get accurate results, as it is not affected by vibration or magnetizing currents, and tests alike motor efficiency, regeneration and torque, as well as efficiency of driving system and tyres.

The comparison of two cars of equal speed and weight, over the same road, shows a saving of from 28% to 30% in favour of the new system, irrespective of a further gain of 28% secured by using less battery.

Surely this is worth while investigating.

Mr. Beach's error has caused me infinite trouble and loss. I went to him at Mr. Dyer's request, in all good faith, and secured the business.

As I have never yet known you to do an injustice to anyone, once you knew the facts, I ask you now to find some strictly business

### [ATTACHMENT/ENCLOSURE]

LETTER TO THOMAS A. Edison Esq., SHEET No. 3. DATE 16th. August 1911.

way, in some department of the battery business, whereby I can get out square and satisfy my friends that I accepted Beach's offer in good faith. And such a business way will undoubtedly pay you better than it will me, as my people here can command business which cannot be had by anyone else.

If you want to see me in Berlin, I shall be glad to come there. If not, I shall be glad to provide a car for test if you will say what we may expect regarding the omnibus or other business if I show you something valuable.

I remain,

Yours truly,

W. N. Stewart

R.W. GONIN & CO. MALE PROPERTY

57. MOORGATE STREET,

LONDON, August 28th. 191 1.

No 2000

Dear Mr.Edison,

gome friends of mine in the East wish me to ask you if you are open to dispose of your cinephonograph rights in the Dutch East Indies and Straits. Settlements. They can provide ' any required capital and are thoroughly familiar with the country. It would be a great favour to me if you could grant

this concession, and advise me with whom arrangements can be made. Yours sincersly,

W.N. Stewart.

FRANCIS J. WALLIS

"LYDDYFE," SYDNE

BATTECYTE STORAGE.
CRITTETIAL

100 PITT STREET

The Managing Director,

Peerless Rubber Selling Co Ltd.

51-3 Elizabeth Street.

By dney .

Dear Sir Refarring to the option which I abandoned and returned to you and abrea, acting as a principal, in that deal, I regret to advice that my operations were hampered, and I found it quite impossible to obtain the capital for thepurposes of selling.

Tram and other Care, to beoperated by the Edison Storage Battery.

I have approached a number of my friends etc and have eyelmet with the assertion that the Edison Storage Datter 1 is not a commercial success, and that itie totally unreliable for the purpose intended, and further I am given to understand that there is an independent Storage Eattery or some similar inventity shortly coming out, and to beput on the market.

On inquiry I find that such reports have doubtless cannot be from a certain Firm, whom I need mat name to you. I hear they have been experimenting at somelenghth with this battery and the casething r adically wrong or this Firm would not be claim, scrapping the Edison Battery and on the ave of taking the agency for comething far cuperior to compete with

Regretting that after this very best later the cream of the Capital available for making the compelled taxon up my options.

Telephone 3

### CREIGHTON & SANDERS

HAMMON & CREIGHTON
Customs, Forwarding, Shipping,
Insurance and General Agents.

CIRCULAR QUAY.

Circula

Sudney, Sept. 28to, 1911, 191

INTERSTATE AND NEW ZEALAND /-

MELDICENS & CO.

R. M. GRIFFITHS & CO. WELLINGTON

SHIRLRY W. HILL & CO. ADDRESAND

H. C. CAMPBELL .

PATTER & PITCALVILLEY
CHEMPTROBER
COOR STORES OF FORWARDS
TO ARY PARY OF THE WORLD.

FREE STORES-CIRCULAR QUAY. Dear Mr. Moncks,

thave been very much interested in the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the reference of the r

Reing, as you know, interested as forwarding Agents in the best and most economical from a provider we will be pleased to have your advice as to whether there is any truth in these statements which are now being put about Sydney. Is the E. B. a fullure, and is there anything now coming on the market which is better than it,

Awaiting your reply.

Yours faith

# The States Import and Export Company, Ltd.

Indent, Commission & Manufacturers' Agents.

GABLE ARONESS—BERMILA, BYENTY, GODES URES—A.B.G. 4718 ED., WESTERS UNION, LIEBERS & A. 1. TELEPHONE NO. 4008. G.P.O. BOX NO. 1202. COMMERCE BUILDINGS,

ASH STREET,

Sydnoy, 28th Sept. 1911 19

T.J.Monoks Esq.,
Managing Director,
Peacless Rubber Selling Co. of Australasia,
51-55 Missbeth Street,

Dear Sir.

Are you aware that a Firm in Sydney has been representing themselves as being the explusive Agents in Australia for The Edison Storage Battery.

They imported a number of these Batteries and found them useless, and they can now been seen lying on the Scrap Heap at Harrickville, - as a consequence they have given up the Agency, - we shall be glad to hear from you on the subject.

Yours faithfully,

THE STATES IMPORT & EXPORT CO. LTD.

Kolleyfum Managing Directors

### LONDON BANK OF AUSTRALIA LIMITED, WESTERN BRANCH, S Y D N E Y. 4th October 1911.

T. J. Monoks Esquire.

Dear Sir,

With reference to the Edison Storage Battery I desire to inform you that all the prominent Hactrical Experts in this city unheestatingly pronounce it så a failure. One leading Electrical Expert stated that it was low in power and efficiency, short lived and not a Commercial Success and in his opinion never would be. The Tudor Company has I understand also reported unfavourably of it.

In view of these reports together with the prejudice against the Estery you are to be sympathised with in your efforts to place it on the American market.

Yours faithfully Macwell

## The States Import and Export Company, Ltd.

Indent, Commission & Manufacturers' Agents.

COMMEDI

COMMERCE BUILDINGS,

ASH-OTREET.

Sydney, 4th October, 1911 19

The Managing Director, The Peerloss Rubber Selling Co. of Australasia Ltd., 51-55 Elizabeth Street, Sydney.

Dear Sir,

COOLS DECO ... A.B.C. 4TH EO.

In further reply to yours of the 20th September calling attention to the formation of the Fedoral Storage Battery Car Co. of Australia to deal in Basoh Cars, operated by the Edison Storage Battery, and in addition to our reply thereto under date of the 28th September we now beg to state:

We have been as already advised very much interested in the Edison Storage Battery, but are compelled to return your Application Form blank for the reason we have been credibly advised by a concern in this City who had been experimenting with the Edison Battery for over one year, that these batteries have proved an utter failure, and for that reason discarded their use.

We take this opportunity of expressing surprise, that a man of your standing in this City should attempt to induce us to invest money in a concern condemned by men who have tried it, or to find you promoting a Company which we are advised is palpably fraudient.

Regretting to be compelled to write in this tenor but



#### 4th Ootober, 1911a

Peerless Rubber Sel	lling Co. of	Australasia	Ltd2
feeling it due to	ourselves to	do so, we a	re dear Sirs,

Yours faithfully,

HE STATES IMPORT & EXPORT CO. LTV.

anaging Directore

STUART & DOUGLAS, LIMITED.
TOLLOSAPPIC ADDRESS.
"GONNY" LIVERPOOL.
TELEFORM AND DAYS 2572 & 3573.
COOPE, SEERS.

Liverpool of Theh. 1911.

Thomas Alva Edison Esq., NEW JERSEY.

UC: 10 311

Dear Sir,

### STUART WHARF & ESTATE, ELLESMERE PORT, CHESHIRE.

We understand that Works are about to be erected in this country for the manufacture of Long-Distance Motor Batteries, which you have recently perfected. We venture to submit to you herewith, plan and particulars of the above Estate and Wharf, as a most suitable site for the erection of works of this character.

The Wharf is about four miles from the entrance to the Manchester
Ship Canal, and there are no bridgen or locks to negotiate on the way up.
Ships can approach and lay alongside at all states of the tide, and
materials can be discharged directly into Works on the adjoining land, and
afterwards despatched either by rail or canal to various points in the interior.

The transit facilities are exceptionally good, as in addition to the Manchester Ship Canal, the Shropshire Union Canal goes through the land, and a private railway siding connects directly with the L. E. N. W. & G. W. systems.

From the above you will see that the cost of handling materials would in existance be reduced to a minimum, and in addition there are agreements/with the

STUART & OOUGLAS, LIMITED.
TELEGRAPHIC ADDRESS.
BOANLY, LIVERPOOL.
TELEFRORE NIT DAYS 3572 & 3573.
CORES, (ACC).
ALL COMMUNICATIONS WHIT BE APPRESED TO THE COMMUNICATIONS WHIT BE APPRESED TO THE COMMUNICATIONS WHIT BE APPRESED TO THE COMMUNICATIONS WHIT BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATIONS WHITE BE APPRESED TO THE COMMUNICATION

41. Castle Street. Liverpool

October. 11th. 1911.

2.

Manchester Ship Canal Co., which insure special rates on goods imported over the Wharf to be manufactured or treated on the adjoining land.

If you are interested in the site we would be very glad to arrange for an inspection any time to suit your convenience, and in the meantime on hearing from you we shall be happy to furnish you with any further particulars.

We are, Dear Sirs,

STUART & DOUGLAS LIMITED

DIRECTOR,

EDICON STORAGE THE LATERAL LAST CONTROL OF SETTLIE ON ALCOHOLOGY STORAGE THE LATERAL LAST CONTROL OF SETTLIE ON ALCOHOLOGY STORAGE THE ACTION OF SETTLIE ON ALCOHOLOGY STORAGE THE ACTION OF SETTLIE ON THE SETTLIE ON THE SETTLIE OF STORAGE THE ACTION OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF SETTLIE OF S

there is no doubt that the impressian made upon us, when we hoar it prenounced is much greater, on account of the idea that is (now)secociated with it stops have moved follows which could be explained but not translated by new and to exact to weak of how the calcebrate inventor, it since whose fame is indisputable has ourceeded in "lightening" the meaning the word Assuminator by lightening the weight of Assuminators (storage batteries) and investing a new type of elerage battery, of light weight, without lead or any acid, complete in itself and entirely distinct in character from all storage batteries hitherts known.

The constituent elements of the Edison cell are iron and nickel, /Picture to yourcelves a small box of cheet etcal of great thingers, with small undulctions great control of the reduced thickness its firmness may be very great. Then cuppose it to be covered with a middle plating, brought about by electrolysic, and you will have an idea of the exterior appearance of the Edison (the name is trice repeated everywhere it occurs in this article) storage buttery.

But I do not wish to occupy your attention with what is merely cuperficial. I wish to give you an idea of what the "dison storage battery is, electrolytically considered. I want you to know what goes on within the battery, and that you may be acquainted with the phenomena which take place when a bettery of "dison storage cells is charged or disolarged, for the purpose of drawing a coach, a truck, a trummy or an electric train, in the work of illuminating a plant of large or small rise, in igniting the taper of a benzine meter or that of the bruster at which cigare are lighted, for operating the born of an automobile or any other of the thousand and one functions which it is capable of fulfilling.

I am going to explain these points to you by following step by step a very intoresting work read by the American anginger Beach, at the 22nd mosting (annual) of the otreet reliway association of the State of New York.

It is a matter of elementary knowledge that the metal, iron, tends to combine with oxygon, that is to say, to become exidized; any piece of iron that is unprotected from the content with the mir becomes mildered, or exidized. The combination of iron with exygem is called exide of iron. Very well; this combination may be decomposed; the exygem may be extracted from the exidized iron, but for the attainment of that and energy must be expended. Conversely, when exygem is combined with the iron, energy is released. While energy may be manifested in the form of heat or of electricity; caloric or electric energy.

We almost all of us pase through life without paying any attention to such matters. There are nearly who do not know that the existion of the knde of a knife produces heat or electricity; yet it is mone the loss of fact that knowledge of how to direct and control this exidation and to the nearwards of the energy produced is the fundamental fecture of the fiden storage Battery. In the first place, the fideon storage battery has, as a secondary coll, positive and negative places that are submorged in a liquid that is called an electrolyte. The negative is formed by perforated receptables of midshelled steal, which contain exide of irreplaced by perforated receptables of Probably technical word for "receivers" iron, finely pulverized, the end pieces being grouped, of applicable. Near this and in front thereof, there is smother plate, called the pocitive plate, which is composed of various perforated etecl tubes, nickelled, which contain exide of nickel.

Hiskel offers the peculiar feature that even after having formed a combination with Oxygon, that is to say, after it has become exidised, it tends to absorb more oxygon, or to become aver exidised. These two platece, one with the reselvers full of oxide of iron and the other, with its tubes full of oxide of nickel are placed in a receptacle of nickelled steal, but at the same time, insulated the one from the other. They are subscriped in water, this water contains in solution fluid potable, to increase its conductivity or its ability to transmit electricity.

The essential parts of the Edison Storage battery, then, are the exide of iron plote, and the exide of nickel plate, and water.

It is a storage battery of a kind that is semewhat analogical to the elder storage batteries but which is in no way on a par with them. The combinetions of irin and nickel with water are met destructive in their character ner are they destroyed by the movement hither and thither af the exygen, and this is the peculier feature of the "dison storage battery; it is stable. The stability of both the oxides and their resistance to atomical changes or to those of a chemical nature, which appeared to have a tendency to ruin them, is very noteworthy. No ection that is known will disturb them or break them up. Said stability, naturally, implies duration and resistance, which were unknown qualities in previous storage batteries. The battery does not deteriorate with use. It only is subject to demage through neglect in using. We do not wish to dwell on its practical application for coaches, trams, trains and electrical transays nor of the economy it affords, which is a final consideration in everything of an industrial nature, for this article, which is already somewhat long -thy, would then assume dimensions of an unjustifiable character and It would perhap appear that I wished to take refuge in details which more properly belong to ite scientific exploitation.

Moreover, we believe that all praise that may be given it, is weak when anything bearing Mr. Edient's eigenture is in question, sepsoially when the inventor cays to whomeever may wish to hear it, that he has worked nine years in abtaining this, the goal that he had fixed upon. Mine years of the life of Zisen devoted on electrical storage battery, to which we may add the assertion of the inventor himself, that this invention is the one of all-eakers that he is not proud of.

November 6, 1911.

Mr. Paul H. Cromelin, Edison Manufacturing Co., Ltd.. Willesden Junction, London.

Dogr Mr. Cromelin:

Hr. Edison has made an arrangement with Mr. J. F. Honnot, C/o Klaxon Co., Ltd., Rue Deru 31, Feris, under which he is to undortake to develop the field for the Edison bettery in England and France. The arrangement is such that we can terminate it at any time, if there is reason to believe that Mr. Honnot is not making reasonable efforts to develop the business to the extent that the territory warrants, and Mr. Monnot fully understands that the continuance of the arrangement is dependent upon his making good.

Undor the proposed plan we will arrange to keep a stock of from 300 to 400 cells of various types in England, in some place to be agreed upon (preforably at Willesden), where we can secure curreng and from which shipments can be made for the English market. Mr. Nonnot will also select a place in Paris in which enther stock of batteries will be kept, these latter being consigned to him, and as sales from this stock are made you will be advised thereof by Mr. Monnot, who will remit for the same. The precise stocks at Willesden and Paris will largely depend upon the size of the business Mr. Monnot may develop, but we wish to keel those stocks as

Wo will sond over from here one of our battery men, who will divide his time botween London and Paris and who

Mr. Paul H. Cromelin- 2.

will fill them properly with electrolyte, "form" them and oversee the matter of their peaking for delivery. When batteries are installed directly in trucks or for other purposes, the battery man can probably also oversee this this work to a large extent to be sure that it is done properly.

By forming the batteries in England and France in this way we save one of our most valuable patents, covering the use of lithia in the electrolyte, which latter will be shipped from Orange.

When the stock at Willesden Has been depleted to an agreed point, additional betteries to make up the deficiency will be shipped on cable order, and to facilitate this latter arrangement a simple code should be arranged between Er. Stevens and yourself. I have requested Hr. Stevens to prejure such a code and to also advice Hr. Homot thereof so that he can use the same code in ordering batteries to replanish the Faris stock. The battery men in his travels to Faris can keep you informed as to the condition of the Paris stock.

The batteries for Willosden will be billed to you at list. less 20%, f.o.b. London. They are to be billed by you to Mr. Monnet at list less 20% f.o.b. London. To this price should be added Mr. Ecison's royalty in equivalents of American money as follows:

B-2 B-4	106	per cell
A-4	40 €	"
A-6 8-A	60 g	
A-0	\$1.00	11
A-12	1.20	и.

In other words, for battories delivered in London

for the British market Mr. Monnot pays the cost to you plus Mr. Edison's royalty, and freight from London.

In the case of batteries shipped to Paris, these will be, as stated, consigned to Er. Monnot at list, less 20% f.o.b. Paris, Plus Er. Edison's royalty as above. On these batteries he will pay any cartage himself in Paris, including the Prench duty.

As battories are sold by him from the Paris stock he will advise you of this fact and remit to you at list, loss 20%, plus royalty as above.

We assume as our share of the expense in connection with the arrangement the salary and extenses of a buttery man, our proportion of rent at Wallosden, transportation to London and Faris and cost of current used in forming and charging the cells. If there are any other expenses, such as any slight charge for book-keeping, stationery, postage, etc., these should be included and absorbed by the charge to Mr. Momnet under any arrangement that you and he may mutually agree upon. The only burden placed upon you is to see that the batteries are paid for by Mr. Monnet on terms not longer than 10 days.

Hr. Edison proposes that Mr. Momnet shall have a free hand to work up the market and see what he can do, so that of course you will refer any inquiries to him.

From the bricf acquaintance Mr. Edison has had with Mr. Monnot he thinks very well of his ability and onergy and he hopes with your cooperation that the arrangement may be made a success.

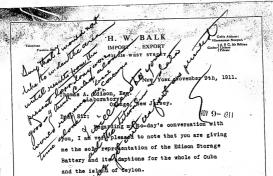
Mr. Paul H. Cromolin- 4.

I have given a copy of this lotter to kr. Monnot in order that there may be no misunderstanding as to the arrangement and he will call upon you shortly so that the details may be worked out between you. With best wishes, boliove me,

Yours vory truly.

Frank L. Dyer,

Vice-Fresident.



As Geylon is a part of British India, and most of the importations for India are going via Geylon, I would be very pleased if you could also grant me the sole control for the above articles also for the whole of British India.

It is well understood that, providing I oan show good results in the course of one year beginning January 1st 1912, no alterations regarding the sole control can be made.

I am now awaiting all the necessary literature and informations of which you spoke to me this morning, and as soon as I get to the bottom of this proposition I will be pleased to give you a trial order. I intend to send an assortment of goods improved by your invention to my representatives. I will have (2.....Thomas A. Edison, Esq..... Nov. 9th'll)

the machines thoroughly demonstrated and there is no doubt that after the people see what they can accomplish we will see the result by getting important orders.

I want to go into this thoroughly and want to do it right. I am awaiting your good naws as soon as possible, and I assure you of my very bast interest in this whole matter.

Very respectfully yours,

H.W.B./ H.

Nov. 10th, 1911

Mr. H. W. Belk, 235 West Street, New York City.

Dear Sir:-

Your favor of the 9th instant is received. In reply let me say that I would not core to enlarge the area of operations until the results from present trritory were proved to be good. I think that cubs alone would require the entire attention of one local concern.

The literature I spoke of is being prepared, and I shall send it to you as fast as we get it out.

Yours very truly,

P. S. You could sale there so long as the territory was open; but I do, not want it rescued so I could not work it thru other houses.

Down or with the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s

. I understand from your letter that I can sell exclusively to Cuba and also to the island of Ceylon. I further note that you allow me to sell to other parts of British India without any restrictions on your part.

Now that we have this perfectly clear, I beg to announce to you that I have secured the services of a first class mechanic who is familiar with the Spanish language. I am making arrangements to send said Gentleman to Cuba well fitted out with a good stook of your inventions, so that same can be properly demonstrated.

Regarding Ceylon, I beg to say that I am in daily cable communication with that place as I have a first class account over there. My Ceylon man is the owner of several plantations, and is a very prominent man on the Island. I, of course, do not know

(page 3 .... Thomas A. Edison, Esq. Nov/11/11)

how far his knowledge goes regarding mechanics, but, he will no doubt find the right man and make this new department a success.

After receipt of the necessary literature and full informations, I will make up an order for which I will pay you cash. These goods I will send partly to Cuba, and partly to Ceylon. At the same time I will take the liberty to send my man for Cuba to your Laboratory and have the necessary points explained.

You see the interest I am taking in this matter and I am confident of your support.

H.W.B./H.

Nov. 14th, 1911

Mr. H. W. Balk. 235 West St.. New York City.

Dear Sir:-

Your favor of the 11th inst. is received.

In order to avoid misunderstanding let me ropest the arrangement outlined at our interview, which was that I would set said the Islands of Cuba and Coylon and hold them to you as exclusive territory so long as you do sufficient business therein to satisfy me. In addition to this I will allow you to sell in other parts of British India as long as they have not been assigned by me to other parties as selling territory.

The properation of the printed matter is progressing. I expect to have it ready shortly and will send it to you. When all is ready I will arrange with you to have your man oome out to the Storage Bettery Works, where he can stay until he is thoroughly familiar with the betterye dynamo and engine.

Yours very truly,

MATURA there will be an enormous agent for the creation refuces accounter . Herman Hayies Eg all over Europe by this Gallery but, it would be too expension My Branker Hayes to so it in the usual way for matines as Bengmenn ham I have exeframed from worthing you done I have analyged to about the battery until I had gone Reep a supply of Calling in Perma Jordon & M. Mount will over the matter very occupiely a ecolor colot to do While in Europe & have go aheard Engineer demonstrate + Closely abserved things - I find that Withodere Them graduallyit would be upoveidle to wrome the an create a Manket large Enopeyle investment cef any money in maningale, to warrant the exception of a the 6 allory, Eller in france or England feelony = Thous ask Mounatt until a certain prediminary inlihoticalism that when he has demonstrated of the battery had been under through to Everyones o alufuelim that certain a small merchandying channel wheely a demonstration - creation of large projects are very durable in a banking so intakview that a domand was inexpensively Evalight he shall day The thing offers you about, There is now doubt chal ayour group to become

intrested 9 am anxons that amove who goes into not will loss but always with profit Tweenign

Culler Status "Edisons New York"

From the Laboratory Thomas A. Edison!

Grange, N.J. Hovember 15th 1911.

—COPY—

Mr. J. F. Mennet,

Paris, France.

Dear Sir:-

Confirming our various conversations in the matter of European representation of Edison Storage Eattery Company:-

Austria, and the sacception of Germany and ermsent use, you are to be the archiver for Gerger European represents the sale of the Edison Storage Battery, en havie as each of the Edison Storage Battery, en havie as suttined in the letter addressed by Mr. F. L. Dyer, Wieser addressed by Mr. F. L. Dyer, Wieser in October 1911, to Mr. Cornage Mattery Compute, in October 1911, to Mr. Cornage Mattery Compute, and of which you have a degree.

All isquiries from said Countries coming to the Edison Storags Battery Company or Wr. Grosslin, are to be ferwarded to you for attention.

This arrangement is to endure as long as your results are satisfactory to me.

Yours truly

Signed Hear a Educar

TELEGRAPH & CABLES ...... RANGOPLY, LONGO

ELEPHONENS CONDENSES A 17 HARLESOEN.

Thomas a Edison\_



### EDISON MANUFACTURING CO. LTD

THE EDISON STORAGE BATTERY

WILLESDEN JUNCTAN

GITY OFFICES.

IN REPLYING AGGRESS THE GOMPANY NOT THE INDIVIOUAL AND MENTION THESE INITIALS

PHC/W.

M

London N.W. NOV. 2

Dear Mr.Edison,

"Mauretania" en route I suppose Mr.Monnot i h New York the night before I here. I had a long talk with him sailed and covered all the various points of interest. I under--stood from Mr.Dyer's letter that Mr.Monnot was to become the for Great Britain and France. I Exclusive Distributing Aren asked Mr. Dyer what about Helland and the rest of Europe except Germany. His reply was that we would take the matter up with you, so we asked you in reference to it. My understanding was that you said we were from to do any business we could except where an exclusive agent was operating. In talking to Mr. Monnot he stated that he did pot so understand and that under his arrangement with you 11 inquiries we received were to be referred to him. I syggested that as I would not be able to see you again before sailing he should fix this matter up during his last week in America so that I would be clearly instructed on the point.

So far as we are concerned, I want to follow out your wishes entirely in the matter, but, as this is the only open point, I would be glad to have you give me specific instructions, if you have not already sent them forward by Mr. Monnot.

I am sending you under separate cover copy of today's "Standard", which contains a marked article about "The Coal Mines Bill", which was up in the House of Commons yesterday, particularly calling your attention to the reference to safety lamps and electric lamps in mining operations. I have heretofore brought to your attention the very great interest over here in this subject.

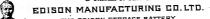
A copy of this letter is being forwarded to My Dyer.

Thomas A.Edison, Esq., ORAHGE, N.J..

CITY OFFICES. 5050 HOLBORI

CODES USED WESTERN UNION, ABC. & LIEBER'S





THE EDISON STORAGE BATTERY

EDISON WORKS. WILLESDEN JUNCTION.

FACTORY. DRANGE, H.J. U.S.A.

THO ADDRESS THE COMPANY NO

TEO TO THE COLSON BUSINESS PHONOGRAPH

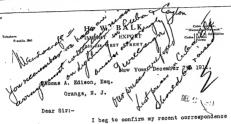
Dear Sir:-

Referring to your valued enquiry re Edison Storage Battery, we beg to advise you that Mr. John J.Honnot. 41, Great Fortland Street, London, Y., has been appointed Sole Distributing Agent in the United Kingdom for the Malson Storage Battery Company of Crange, Hew Jersey, U.S.A.

Mr. Monnot has been in the United States for several weeks perfecting the necessary details as to the handling of the business here, and is arranging to have sont over sample electric vehicles, for pleasure and business over sample schottle ventuces, for pressure and obsides purposes, electric trucks etc., to as to be able to chow and demonstrate to all interested the various applications of the Edicon Storage Battery. He will have complete stocks of cells of the various sizes and be in position to make quotations and aupply all wants.

When his stock of batteries and sample vehicles arrives, and he is ready to show the complete line, you will be duly advised, and we request you to then direct all further correspondence to him. Meanwhile, pending Hr. Konnot's arrival, we shall be pleased to give you any information relative to the performances of the Edison Battery in its various applications.

Very truly yours. EDISON MARUFACTURING CO'PANY LTD.



as well as conversations. Your pamphlet which I received had my

full interest, and I am just preparing to have same translated with a few alterations into the Spanish language. But, before I distribute same on the Island of Cuba I will send the proof to you for your kind approval. For the Island of Ceylon, I would ask you to kindly let me have at least a few dozen of these pamphlets.

As per your information that you would arrange with me to have me come out to your storage battery works as soon as the plant is finished, I am anxiously waiting for an appointment, as I would like to get this whole matter in shape before I leave for Europe for about two months time, beginning of January.

As informed before, the field of Cuba for your different inventions, mainly your storage battery, is immense. My bankers, Messrs. Müller, Sohall & CO. who are very well connected on the Island of Cuba,

(Thos. Edison, Esq. '(page two) Dec.7'11.)

promised me their utmost support. They have written already regarding this matter to one of the wealthiest concerns in Havana, Mesera. Upman & Co., and these gentlemen are very anxious to see me. In order to fully demonstrate the storage battery plant, I want to get familiar with same in your works. I further want to get a complete outfit for me to take along, and to teach my Guban representatives so that they can visit all the prominent people on the Island of Cuba, so that the great benefits of your storage battery outfit will become known.

There is, however, some difficulty which my bankers questioned me about; I have nothing to show that I have your sole representation for Cuba, and if I see people like Upman & Co., Havana, it is absolutely necessary that I have my credentials. I do not doubt in the least that you would bind yourself with me for one yearlbeginning January first. Of course it is understood that this is simply a formal arrangement, as I personally rely upon your arrangements which you made as per letter of November the 14th. My bankers, however, saw right away that this business would develope to a very important one, and that even a moderate capital would not be sufficient to swing the thing in the proper way. It might begin with one or two orders, and then develope to such an extent that orders will come in ten at a time, and figuring on this, Messrs. Muller, Schall & Company will give me the necessary financial support, and, in order to do this, they would like to see the above mentioned contract. Regarding the prices as per your pamphlet, I

## (Thos. Edison, Esq. '(3) Dec 7, '11.)

would profer to get engines, generator, etc., from the manufacturer, as they will quote me their export prices which are much below your figures. Figuring a profit of 20% on your prices might be alright for your agents in the United States, however, working a place like Cuba, where the wealthy people are acoustomed to being splendidly entertained before anyone is in a position to talk business to them is a different proposition. This is a peculiarity of the Spanish people, and this factor has always to be observed. This is why I prefer to get the export prices from the other factories, as I am of the opinion that the advantage I have there would partly over such introduction expenses. I should be very much pleased to receive a favorable reply by an early mail, and, thanking you, I am,



H. W. B. /H.

BATTERY - STORAGE - CRITICISM

Dec. 8th, 1911.

## Confidential

N. W. Lewers, Esq., London Bank of Australia, Limited, Sydney, Australia.

Dear Sir:-

I have recently come into possession of information so astounding to me as to be beyond my comprehension. I refer to the contents of several letters addressed to Mr. T. J. Monoke, who has left the same with me. Among these letters is one from yourself under date of October 4th, 1911. According to the atstements made in said letters.

some so-called experts in your city, after a year's experiment, have pronounced the Edison Storage Editory an utter failure, and have relegated it to the sorup heap. Such an opinion as this is so utterly and absolutely at such great variance with actual facts that it is worthless, and I can only account for it on one of two grounds, nanely, incompetenoy out dishonesty.

On the question of competency it is quite sufficient to say that in making the statement that the Raison Storage Battery is not a commercial success, that it is an utter failure and unreliable, the so-called electrical experts in your City have arrayed themselves in direct opposition to established facts and to the opinions of many of the highest scientific and engineering experts of America and Europe. Hence, if the opinion of these so-called eloctrical experts in Sydnoy is to be omsidered in the light of their competency, they stand convioted of ignorance, and, therefore, their judgment in this case is worthless.

This brings me to the second point, namely, dishonesty. I do not for one moment pretend to make a positive allegation that the formulation of the adverse opinion above referred to was actuated by base motives, but let me state for your benefit the character of one kind of opposition with which I have to contend in this country. There are certain business interests that are inimical to the introduction and exploitation of my storage battery, and in our efforts to dispose of our product we are constantly called upon to combat the most flagrant and outrageous mendacity. If we were merely required to meet ordinary business competition I should not have the slightest complaint to make, but gross falsehood and underhand practices meet us at every turn. Bribery of employees of intending purchasers has been frequently resorted to by these unscrupulous interests, but this has been uncovered by us in several instances, and the offenders sent to jail. I will not trespass upon your patience by entering further into details of the campaign of misrepresentation, falsehood and corrupt practices that have confronted me in the commercial exploitation of my battery. Suffice it to say that it has been so general that I should not be surprised if it had extended soross the ocean.

In-as-much as facts are more substantial, them opinions, allow me to indicate briefly the commercial status of my storage battery in this country. The most extensive employment has naturally been for commercial trucks and pleasure vehicles, and of these there are at present between 1500 and 2000 in daily use, operated by the Edison Storage Battery. These are all giving satisfactory results, and this brench of our business is increasing rapidly day by day, much of it coming in the shape of additional orders from satisfied oustoners.

My battery is also used very extensively in railroad train lighting and for signalling by many of the greatest
railroads in the United States, such, for instance, as the
New York Central R.R.; New York, New Haven & Hartford R.R.;
Pennsylvania R.R.; Lehigh Valley R.R.; Baltimore & Chio R.R.;
Union Paolific R.R.; Great Northern R.R., and many others.
This business is also increasing by leaps and bounds purely
on merit. If you are at all acquainted with railroad conservatiom you will fully realize what this means. A great many
railroad platform baggage trucks are also equipped with my
battery, and orders in this direction are becoming more frequent.

Ignition sets for gasoline automobiles, motor boats and stationary gas and gasoline anglines, call for a large output of our smaller size cells. We are also supplying batteries for lighting of country houses by means of isolated plants. These are also giving most satisfactory results.

The Edison Storage Battery has also been adopted by the United States Government for many uses, and next year I expect to begin the equipment of some of our submarines with very large batteries especially designed for the purpose.

As to atroot ours propelled by my battery. I would refer you to the enclosed statement or what has been done by the Pederal Storage Battery Car Co. in the way of selling these cars. This liet explains itself, but allow me to call your special attention to the repeat orders which have been given after cars have had commercial triels. It will undoubtedly occur to you that the street car business is one, which would naturally be of slower growth than the others above mentioned. It has been so in this case, but now that the commercial success of street cars operated by my battery has been firmly established, orders are coming in fast.

I am sending to you herewith copy of the catalogue of the Edison Storage Battery Company, the fromtpiece of which shows the group of buildings in which my industries are carried on here. The buildings on the left are those in which the storage battery is made, the main building being about 400 feet long. Since the picture was made, however, I have been compelled to put up an additional building, and enclose a photograph showing the battery plant separately. Beside these buildings, I own a special Chemical Works about three miles from here, in which are manufactured the chemical ingredients used in the battery. Photograph is emclosed.

The plant of the Federal Storage Battery Car Co.

is located at the came place as the last named Works, and I will also enclose photograph thereof. There is plenty of room for enlargement, as I own a large tract of ground where those buildings now stand.

I could extend this letter by going into greater detail, but will not do so, as I believe you are a business man of sufficient accument to expreciate the fact that the above are not the unual ear-marks of commercial inaptitude, failure or unreliability. It might possibly be said that the foregoing is en ex parts statement by the person principally interested, but lat me say that you are at liberty to write to your New York correspondents and have them investigate. Should you desire to have them look into the natter at this end, I shall be glad to afford them every facility for examination of the entum of the manufacture and exploitation of my storage battery. There is nothing to conseal on my part. On the contrary, I welcome all fair-minded and intelligent inquiry.

The reason I have teken the trouble to write you at such length is chiefly to acquaint you with the truth and to keep you from being led into the error of spending a lot of money in trying to install a system of etreet care operated by betteries of an old, or possibly re-vamped, type, which have been repeatedly tried in the United States for the purpose and utterly failed. This statement can be fully verified. On the contrary, street care operated by my battery have been cenclusively proven to be successful, commercially and scientifically, and have opened the way to greater simplicity, reliability and

economy in the operation of street cars in cities and suburban localities. The weight of rails may be less, the overhead trolley or underground slot may be dispensed with, no bonding of rails is required, and there is no tying up of an entire system by trouble in the power house.

In our endeavors to exploit street reliming travel by means of ears operated by my bettery, I am fully aware that we shall have to contend with the most determined opposition of interests already strongly entrenched, such, for instance, as the manufacturers of other types of bettery, and the Companies who make a business of installing railroads with overhead or slot trolley systems. Naturally it is to the interest of these concerns to say nothing in favor of the Edison battery, but, on the contrary, to oppose it tooth and nail, for they see in the practical success it has so far attained and the economy of operation it shows that it is the system which is bound to prevail. All I ask is fair and intelligent consideration.

Allow me to add that I did not know Mr. Monoke personally before my interview with him a few days ago, and I have not seen him since. So far as I know his dealings have been with the Federal Storage Battery Cer Co.

Yours very truly.

(signer) Thomas a. Educon

TAE/ES

Dec. 12th, 1911

Mr. H. W. Belk.. 235 West St.. New York City.

Dear Sir:-

Your favor of the 7th instant, in regard to the house lighting proposition with my storage battery, is received. You ask for a contract giving you the exclusive agency for this class of business in the Islands of Oubs and Ceylon for one year. I cannot consent to give it. When we had our interview last month about this subject you asked me for a time contract, and I then told you I would not tie up any territory for any specific length of time, but would hold it as long as you might do sufficient business therein to satisfy me. This was repeated in my letter of November 14th last. I see no reason to change my decision now.

You say in your letter that you wish to some out to the storage hattery plant to obtain full details and instructions, so that you can get the matter in shape before you leave for Surope, where you will be for about two months. I am quite willing that you should do this if you will give me notice a day or two shead, but as you are going to be in Europe for two months, would it not be better to wait until

your return, as you cannot go to Cuba until them?

I have rented a house here end as furnishing it and equipping it with a complete plant for demonstration purposes. As this is essentially the business you desire to exploit in Cuba and Ceylon, would it not be well to wait for a few weeks and see it in operation?

Yours very truly,

TAB/ES

Dec. 13th, 1911

Paul H. Cromelin, Esq., Rdison Menufacturing Co., Ltd., Willesden Junction, London, H.W., England.

Dear Mr. Cromelin:-

Your favor of the 23rd ult. to Nr. Edison, together with the bunch of motor cycle catalogues, came duly to hand. Mr. Edison wants me to thank you therefor. I have also received your favor of the 27th ult. in which you give me the discounts. All this data will be of much use to Mr. Edison. Wishing you the Compliments of the Sesson, I

remain.

Yours very truly,

WHM/RS

Yelephone Franklie 3903 H. W. BALK IMPORT - EXPORT Cable Address:
"Hierosygus Newyork."

[A B C, Sch Edition
Codes | Liebere |
Private

New York, December 14th 1911.

Thomas A. Edison, Esq.

Orange, N. J.

Dear Sir:

I received your favor of the 12th this morning, and your full explanation had my best attention.

I note that you are not able to tie up any territory for a specific length of time, and I beg to assure you that you will not have any reason to complain about my sales; as, I will do all in my power to get important orders.

I am so much interested in this new menture, that I am anxious to see the house lighting plant in oppration, and if your complete plant for demonstration purposes should be finished before the 6th of January, on which day I am leaving on the Steamer Massica, I will be glad to have you make an appointment with me.

Trusting to receive your favorable news,

I am,

Warrs very truly,

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